NEWS: Oracle simplifies its unwieldly licensing schemes. PAGE 6

Quarantining IT workers in data centers might not be feasible, execs say. PAGE 7

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Forecast 2007

Our **Vital Signs** survey shows that you'd better brace for **flat budgets** and **sluggish hiring**. But security projects will **sizzle**, and Vista will make a **splash**.

NEWSPAPER

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Lean-Year Budgeting, PAGE 14
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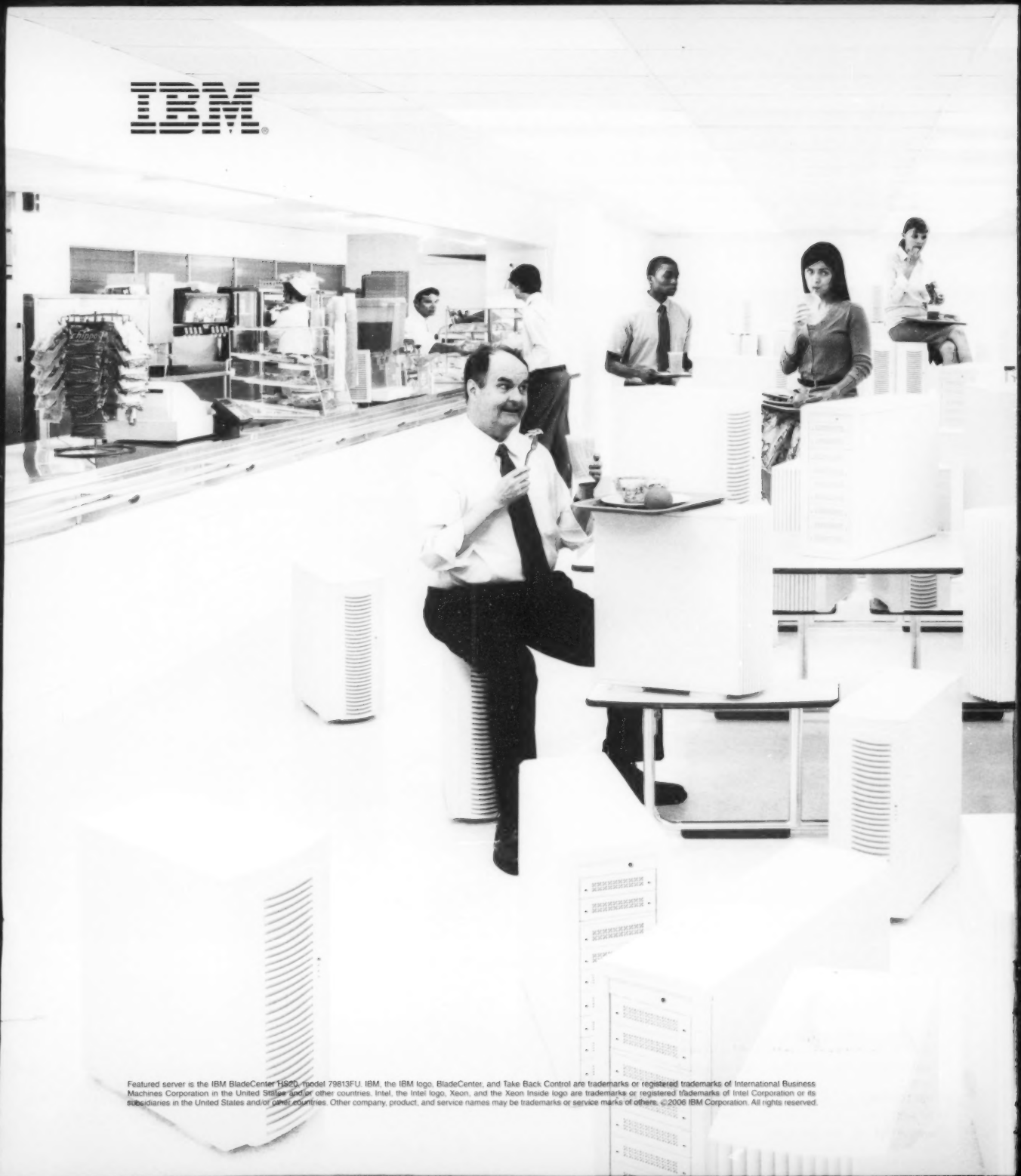
PLUS: Charles Feld, Warren Bennis, Robert Metcalfe and other industry luminaries presage the biggest IT trends of the new year. **PREDICTIONS START ON PAGE 12.**



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Xeon inside
Dual-core.
Do more.

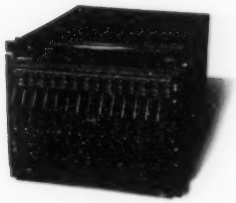
_INFRASTRUCTURE LOG

_DAY 25: They're in the cafeteria!! AAAGGGHHH!! These useless things can't work with each other. They aren't scalable. They aren't responsive. And you can't adjust new capacity on the fly. The horror.

_So many of them, I have to eat standing up. My arches are killing me. And I got avocado on my shirt.

_DAY 26: The answer: IBM BladeCenter® with Dual-Core Intel® Xeon® Processors to boost performance and balance workloads. Its self-automating features make it easy to manage, and it has more blades per chassis for a smaller footprint. The BladeCenter even opened up its specs, so the things we buy today can work with the things we buy tomorrow.

_I can eat my turkey-avocado sandwiches in peace again. Mmmmm...



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7 Gartner recommends that data centers prepare for possible quarantines of IT workers during a pandemic. But some IT managers don't think that approach will prove to be feasible.

7 Early Outlook 2007 users are finding that it includes features to help manage an ever-growing number of corporate e-mails.

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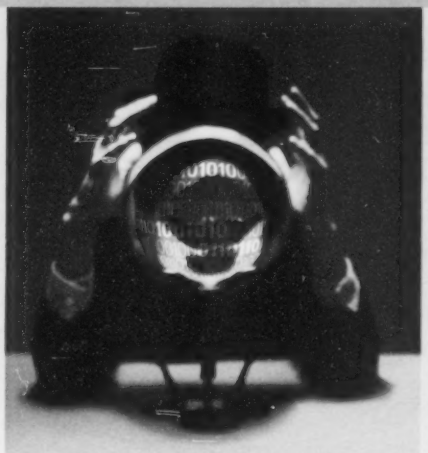

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3 Questions for Charles Feld. The former CIO at Burlington Northern Santa Fe and Delta Air Lines sees a bright 2007 in which CIOs and CXOs come together to create 21st century companies.

18 A Dangerous World. Last year's headlines about calamities and breaches have put disaster recovery and security at the top of the IT agenda. Plus, we look at five security technologies that will drive many upcoming initiatives.

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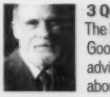

3 Questions for Vinton Cerf. The Internet pioneer, who's now Google's chief Internet evangelist, advises IT managers to get smart about security in 2007.

And, 3 Questions for Leonard Kleinrock. The creator of the basic principles of packet switching – which serves as the foundation of the Internet – warns IT managers not to bet on only one broadband technology in 2007.

26 Sound-off: Vista. Microsoft will ship boatloads of its new operating system, but two of our columnists agree on little else. **Mark Hall** expects 2007 to be the Year of the Great Vista Fiasco, and he says that despite Apple's efforts, Leopard won't reap the benefits. In response, **Frank Hayes** argues that, sure, Vista has fiasco potential, but the real story is whether the upgrade will spur IT to start chopping out operating system dependencies in applications.

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32 Tire-kicking Tech. Server virtualization topped the list of technologies being tested by respondents to *Computerworld*'s latest Vital Signs quarterly trend survey. Read how five companies are getting benefits now from each of the top technologies.

3 Questions for Warren Bennis. The era of the single leader is over, says Warren Bennis, one of the world's foremost authorities on organizational development, leadership and change. And if that's a surprise, he says, it shouldn't be.

38 Frankly Speaking: Hope & Headaches. If you're looking for hot-button issues to meet head-on – or to sidestep – in 2007, Frank Hayes has a few to watch out for.

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ONLINE

Provocative Predictions: IT leaders and other industry luminaries think big about the changes and advances the new year will bring. Plus, vote for the technology you think will make the biggest splash in 2007.

What's Ahead: *Computerworld*'s exclusive Vital Signs survey shows flat budgets and slow hiring for the year ahead. But IT managers are putting security at the top of their priority lists. See all the results online.

Top Stories: Windows Vista, monetizing information, hacking, spam and open source are among the hot-topics-to-be in the year ahead, says IDG News Service reporter Nancy Weil.

Find these stories and more online at *www.computerworld.com/itmanagement*.

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BY MARC L. SONGINI

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The interface to IBM OmniFind Yahoo Edition is available now for free to users of Cognos' search tool.

Data Center Quarantines Might Not Be Workable

Keeping staffers away from home in a pandemic would be hard, IT execs say

BY PATRICK THIBODEAU

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But Combs said the USDA will try to rely on remote management of its data centers if a pandemic strikes. "The most logical place folks are going to want to be is at home," he said.

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"Are your workers in the data center going to be that loyal to your company that they'll abandon their families if something bad is happening out in the real world?" said Fred Klapetzky, a business continuity management consultant at Marsh Inc., a risk and insurance services firm in New York. "We don't think the answer is yes. You can't keep people locked up inside."

William Cross, CIO at Seminole Electric Cooperative Inc. in Tampa, Fla., said a quarantine would be "a risky approach" during a pandemic. Cross, who has a Ph.D. in information sciences and did his doctoral thesis on how stress affects the quality of software programming, said being locked inside a data center would be too much for many IT workers to bear.

> I don't think it's realistic to expect a bunch of people, no matter how dedicated, to stay in a particular facility for several weeks.
>
> SCOTT McPHERSON,

Keeping Workers Home

Instead, Cross is focusing on remote management capabilities. IT staffers may occasionally be needed in data centers during a pandemic to address hardware issues, he said. But he added that he would prefer to keep his workers at home.

"I don't think it's realistic to expect a bunch of people, no matter how dedicated, to stay in a particular facility for several weeks without having to do things or take care of their families," said Scott McPherson, CIO for the Florida House of Representatives and head of the state's CIO pandemic preparedness committee.

McPherson said IT managers should prepare for the possibility of having a reduced workforce in their data centers by doing backup training, such as teaching mainframe systems administrators to operate servers or showing administrative assistants how to load tapes. He also recommended stocking up on rubber gloves and other supplies that can help prevent diseases from spreading.

In addition, IT managers need to determine which computing services can be turned off without hurting business operations, McPherson said. "IT can't keep everything up during a pandemic — it's not humanly possible," he said.

Christopher Bieber, vice president of engineering at the Memphis Light, Gas and Water Division, said the publicly owned utility is looking at upgrading its support for working remotely. But telework "places a demand on IT folks that you need to be able to operate smoothly," Bieber said.

The utility is also exploring the idea of quarantining IT staffers, but Bieber said that such an approach could cause problems for the families of workers. "You've got to make sure their families are looked after if you're prepared to take that step," he said.

Outlook 2007 Gives E-mail Management a Boost

BY ERIC LAI

His real desk may be a mess, but Jason Clarke's virtual office is neat because he assiduously answers, files or deletes the 400-plus e-mails he gets each day.

"My feeling is that if you have more than a screenful of e-mails in your in-box, you're being rude," said Clarke, a technical sales and marketing manager at Wenco International Mining Systems Ltd. in Richmond, British Columbia.

Clarke is an archetypal "filer," spending hours a day managing his Microsoft Outlook e-mail program.

The latest version of Microsoft Corp.'s Outlook personal information manager adds several improvements that beta testers and analysts say are helping early users cope with ever-growing in-boxes.

Outlook 2007 has been available to business users since November and will ship to consumers later this month.

Several early users and analysts cited the improved e-mail search capability as the chief enhancement in Outlook 2007, which is available as part of Office 2007 or as a stand-alone product for $109.95.

Using the Outlook 2003 version of the product, searching through thousands of messages for old e-mails can be so slow that it becomes "almost unusable," said Peter Pawlak, an analyst at Kirkland, Wash.-based Directions on Microsoft. Outlook 2007, in contrast, builds indexes of users' e-mails, he noted.

"Once [the indexing] is done, the search is very, very quick," said Dawie Olivier, an IT project manager at Sasfin Bank Ltd. in Johannesburg, South Africa. Sasfin switched to Outlook 2007 early last year as part of the bank's participation in Microsoft's Office 2007 Technology Adopter Program. Since then, Olivier has cut the time he spends handling e-mails each day from two hours to 45 minutes.

Not only do ad hoc search results come back instantly, but Olivier said the new version also lets him create e-mail views based on preset keywords. The latter feature, along with Outlook 2007's ability to support much larger e-mail accounts, let Olivier eliminate a filing system that had grown to more than 300 folders and subfolders, he said.

Jessica Arnold, Microsoft's product manager for Outlook 2007, said the company is positioning Outlook as a communications dashboard for information workers.

For example, she said, Outlook 2007 lets users send instant messages without having to start the Office Communicator client software. Outlook will eventually become the repository for most workers' messages, whether in e-mail, IM or voice format, she said.

Clarke did note that for all the improvements in Outlook 2007, it isn't yet the perfect application. He said that despite the improved efficiency, he will continue using an add-on called ClearContext IMS to collapse long e-mail exchanges into easier-to-manage threads.

NEW FEATURES

Outlook 2007

- Instant search results through an index-based engine
- Built-in RSS aggregator for reading Web site feeds and blogs
- Improved integration with SharePoint Portal Server and Exchange 2007
- To-do bar that shows a snapshot of a user's appointments and active tasks

Pandemic Preparations Could Be Costly for USDA

ENSURING THAT the USDA's data centers can remain operational and that its 110,000 employees and 50,000 contractors can work remotely during a pandemic is no small task. "It's going to take a tremendous amount of planning," said CIO David Combs.

It likely will also require millions of dollars. For example, a planning document temporarily posted on the USDA's Web site estimated that it will cost $23 million to broaden the agency's support for working remotely. That includes providing new computers, security training and help desk support, as well as expanding the agency's server and virtual private network infrastructures and adding more Citrix software licenses.

The planning document was removed from the Web site after *Computerworld* inquired about it. USDA officials said the information in the document was a preliminary framework, not an estimate of actual costs.

Combs said the agency will also have to give its networks "some headroom" to ensure that they can handle expected surges in traffic from remote workers. "Our networks are designed for current capacity," he said.

– PATRICK THIBODEAU

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"Are your workers in the data center going to be that loyal to your company that they'll abandon their families if something bad is happening out in the real world?" said Fred Klapetzky, a business continuity management consultant at Marsh Inc., a risk and insurance services firm in New York. "We don't think the answer is yes. You can't keep people locked up inside."

William Cross, CIO at Seminole Electric Cooperative Inc. in Tampa, Fla., said a quarantine would be "a risky approach" during a pandemic. Cross, who has a Ph.D. in information sciences and did his doctoral thesis on how stress affects the quality of software programming, said being locked inside a data center would be too much for many IT workers to bear.

> "I don't think it's realistic to expect a bunch of people, no matter how dedicated, to stay in a particular facility for several weeks."
>
> SCOTT McPHERSON, CIO FOR THE FLORIDA HOUSE OF REPRESENTATIVES

Keeping Workers Home

Instead, Cross is focusing on remote management capabilities. IT staffers may occasionally be needed in data centers during a pandemic to address hardware issues, he said. But he added that he would prefer to keep his workers at home.

"I don't think it's realistic to expect a bunch of people, no matter how dedicated, to stay in a particular facility for several weeks without having to do things or take care of their families," said Scott McPherson, CIO for the Florida House of Representatives and head of the state's CIO pandemic preparedness committee.

McPherson said IT managers should prepare for the possibility of having a reduced workforce in their data centers by doing backup training, such as teaching mainframe systems administrators to operate servers or showing administrative assistants how to load tapes. He also recommended stocking up on rubber gloves and other supplies that can help prevent diseases from spreading.

In addition, IT managers need to determine which computing services can be turned off without hurting business operations, McPherson said. "IT can't keep everything up during a pandemic — it's not humanly possible," he said.

Christopher Bieber, vice president of engineering at the Memphis Light, Gas and Water Division, said the publicly owned utility is looking at upgrading its support for working remotely. But telework "places a demand on IT folks that you need to be able to operate smoothly," Bieber said.

The utility is also exploring the idea of quarantining IT staffers, but Bieber said that such an approach could cause problems for the families of workers. "You've got to make sure their families are looked after if you're prepared to take that step," he said.

Outlook 2007 Gives E-mail Management a Boost

BY ERIC LAI

His real desk may be a mess, but Jason Clarke's virtual office is neat because he assiduously answers, files or deletes the 400-plus e-mails he gets each day.

"My feeling is that if you have more than a screenful of e-mails in your in-box, you're being rude," said Clarke, a technical sales and marketing manager at Wenco International Mining Systems Ltd. in Richmond, British Columbia.

Clarke is an archetypal "filer," spending hours a day managing his Microsoft Outlook e-mail program.

The latest version of Microsoft Corp.'s Outlook personal information manager adds several improvements that beta testers and analysts say are helping early users cope with ever-growing in-boxes.

Outlook 2007 has been available to business users since November and will ship to consumers later this month.

Several early users and analysts cited the improved e-mail search capability as the chief enhancement in Outlook 2007, which is available as part of Office 2007 or as a stand-alone product for $109.95.

Using the Outlook 2003 version of the product, searching through thousands of messages for old e-mails can be so slow that it becomes "almost unusable," said Peter Pawlak, an analyst at Kirkland, Wash.-based Directions on Microsoft. Outlook 2007, in contrast, builds indexes of users' e-mails, he noted.

"Once [the indexing] is done, the search is very, very quick," said Dawie Olivier, an IT project manager at Sasfin Bank Ltd. in Johannesburg, South Africa. Sasfin switched to Outlook 2007 early last year as part of the bank's participation in Microsoft's Office 2007 Technology Adopter Program. Since then, Olivier has cut the time he spends handling e-mails each day from two hours to 45 minutes.

Not only do ad hoc search results come back instantly, but Olivier said the new version also lets him create e-mail views based on preset keywords. The latter feature, along with Outlook 2007's ability to support much larger e-mail accounts, let Olivier eliminate a filing system that had grown to more than 300 folders and subfolders, he said.

Jessica Arnold, Microsoft's product manager for Outlook 2007, said the company is positioning Outlook as a communications dashboard for information workers.

For example, she said, Outlook 2007 lets users send instant messages without having to start the Office Communicator client software. Outlook will eventually become the repository for most workers' messages, whether in e-mail, IM or voice format, she said.

Clarke did note that for all the improvements in Outlook 2007, it isn't yet the perfect application. He said that despite the improved efficiency, he will continue using an add-on called ClearContext IMS to collapse long e-mail exchanges into easier-to-manage threads.

NEW FEATURES

Outlook 2007

- Instant search results through an index-based engine
- Built-in RSS aggregator for reading Web site feeds and blogs
- Improved integration with SharePoint Portal Server and Exchange 2007
- To-do bar that shows a snapshot of a user's appointments and active tasks

Pandemic Preparations Could Be Costly for USDA

ENSURING THAT the USDA's data centers can remain operational and that its 110,000 employees and 50,000 contractors can work remotely during a pandemic is no small task. "It's going to take a tremendous amount of planning," said CIO David Combs.

It likely will also require millions of dollars. For example, a planning document temporarily posted on the USDA's Web site estimated that it will cost $23 million to broaden the agency's support for working remotely. That includes providing new computers, security training and help desk support, as well as expanding the agency's server and virtual private network infrastructures and adding more Citrix software licenses.

The planning document was removed from the Web site after *Computerworld* inquired about it. USDA officials said the information in the document was a preliminary framework, not an estimate of actual costs.

Combs said the agency will also have to give its networks "some headroom" to ensure that they can handle expected surges in traffic from remote workers. "Our networks are designed for current capacity," he said.

– PATRICK THIBODEAU

GLOBAL DISPATCHES An International IT News Digest

Carrier Set to Fight EC Over Network Access

BERLIN

WITH THE support of German lawmakers, Deutsche Telekom AG is headed for a clash with the European Commission over a plan to keep rival telecommunications carriers from using its new high-speed broadband network.

The upper house of the German parliament, the Bundesrat, last month approved a revised telecommunications law that allows Deutsche Telekom, which is partially state-owned, to ban competitors from selling services on the broadband network.

The decision flies in the face of EC legislation mandating that members of the European Union force dominant telecommunications companies to open their network infrastructures to rivals on favorable terms. In November, the EC warned the German government that it would open "infringement proceedings" if the exemption for Deutsche Telekom was approved.

Deutsche Telekom argues that the broadband network represents a new market for combined telephony, TV and high-speed Internet services and that such markets are protected under EU laws. The Bonn-based company also contends that it needs to protect its €3 billion ($4 billion U.S.) investment in the network, which is based on very high bit-rate DSL technology, or VDSL.

■ JOHN BLAU, IDG NEWS SERVICE

Fujitsu Tapped to Build Stock-Trading System

TOKYO

FUJITSU LTD. beat out four other bidders for a contract to develop a new trading system for the Tokyo Stock Exchange, which has had a string of high-profile problems with its existing Fujitsu-built system.

The stock exchange has budgeted ¥30 billion ($253 million U.S.) for the system and expects it to be in place by late 2009. In its Dec. 19 announcement that the contract was being awarded to Fujitsu, the exchange didn't disclose the value of the deal or identify the losing bidders.

Problems with the current system led the exchange to stop trading on two occasions last January and in November 2005. The system was fixed, but the exchange began planning for the new one last March.

■ MARTYN WILLIAMS, IDG NEWS SERVICE

Germany Pledges Funds To Boost IT Industry

POTSDAM, GERMANY

GERMAN CHANCELLOR Angela Merkel last month pledged to distribute €1.2 billion ($1.6 billion) in grants over the next three years to support innovation in Germany's IT sector.

Speaking at the German government's first-ever national IT conference, held Dec. 18 at the Hasso Plattner Institute in Potsdam, Merkel also called on politicians, business leaders and researchers to work more closely to help the country secure a leading position in the global IT market.

Germany's technological innovation has been steadily waning, partly because high labor costs have deterred investments, said Henning Kagermann, SAP AG's CEO. Kagermann also blamed what he said were declining standards at universities.

"In a global comparison, we are not a leader, and even worse, we are falling behind," he said.

■ JOHN BLAU, IDG NEWS SERVICE

GLOBAL FACT

$132B

Projected size of the IT market this year in the Asia-Pacific region (excluding Japan), up 10% from the expected total of about $120 billion during 2006.

SOURCE: IDC, FRAMINGHAM, MASS.

Compiled by Mike Bucken.

Briefly Noted

ING Groep NV in Amsterdam has signed seven-year contracts worth a total of €750 million ($994 million U.S.) with a vendor consortium to provide end-user support services to its 53,000 employees in Europe. ING's contracts with Royal KPN NV, Getronics NV, Atos Origin SA and Accenture Ltd. cover the installation, maintenance and support of the financial services firm's desktop and laptop PCs, printers and telephones.

■ JAMES NICCOLAI, IDG NEWS SERVICE

The National Copyright Administration of China has signed an agreement with the Business Software Alliance to cooperate in investigations of software piracy. The BSA estimates that 86% of all software used in China during 2005 was pirated, costing the software industry $3.9 billion.

■ STEVEN SCHWANKERT, IDG NEWS SERVICE

LM Ericsson Telephone Co. plans to buy Redback Networks Inc., a San Jose-based maker of edge routers, for $2.1 billion in cash. Redback said it will become a subsidiary of Ericsson and retain its management team. Redback's routers support voice, video, data and mobility services at the outer edges of carrier networks.

■ STEPHEN LAWSON, IDG NEWS SERVICE

Microsoft Releases Draft API for PatchGuard

BY JAIKUMAR VIJAYAN

Microsoft Corp. last month released draft application programming interfaces (API) that will allow third-party security vendors to work around PatchGuard, a kernel protection technology in Windows Vista. The Vista technology has been at the center of a dispute between Microsoft and several security vendors, which claim that PatchGuard hampers their ability to deliver key security capabilities such as host-based intrusion detection. In a recent interview with Computerworld, **Ben Fathi**, *vice president for the Windows core operating system and former head of Microsoft's security technology unit, talked about the draft APIs and the reasons for releasing them.*

How did Microsoft create the draft APIs? What we have done is work with all the [security] vendors. We have gotten their requirements. This is our plan for what we will deliver with [Service Pack 1]. Until the end of January, we will be talking with vendors and getting their detailed feedback. So far, we have gotten feedback on the scenarios they are trying to address and their requirements around those scenarios: Why is it that you want an API, and what do you want to do with that API? Now we are giving them the API. They are going to read the document and tell us whether it accomplishes all the scenarios they want. Over the next few weeks, we will work with them to see if there are any changes that are needed.

How will Microsoft handle future requests for new APIs from security vendors? We will continue to work with them. We have an e-mail alias and regular monthly meetings where they can come and ask for additional requirements. This set we described today is based on the things they brought to us so far. To be clear, all of the vendors that we know about, we have talked to directly and told them the approach we are taking. They are all fine with it; they all like the idea. They believe they can achieve a majority of the functionality they want with this first set of APIs.

Does this strategy represent a change in Microsoft's policy for allowing access to the Windows kernel? You've got to be careful when talking about access to the kernel. All of our partners have always had access to the kernel. What we offer is access to extend the functionality of the kernel through documented APIs. What we have always said is that we don't want third parties modifying the kernel itself to achieve some functionality, because that is not supportable, because is it not using documented interfaces. Every time we release a service pack or a new version of Windows, we break their applications. So our definition of access to the kernel is access through documented supported APIs. We haven't changed that. We will continue to add APIs to make sure [vendors] get everything they want. But our stance on kernel patch protection has not changed. We do not turn it off. There is no way to turn it off, because if we do turn it off, basically there is no security in the kernel. ▸

Correction

The Blue Cross and Blue Shield Association is not a member of America's Health Insurance Plan, as was reported in the story "Insurance Firms Agree to Back E-health Standards" on Dec. 18. The separate trade associations both agreed to support common electronic health records standards.

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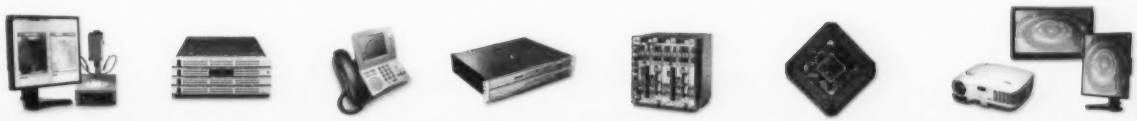

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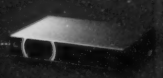

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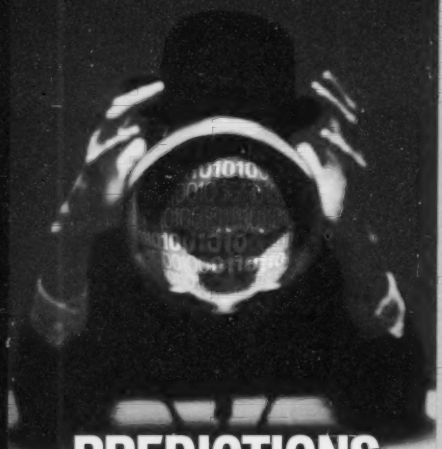


PREDICTIONS

Speech recognition will be used to predict failure in cars and servers. Mitsubishi Electric Research Laboratories is adapting speech-recognition software to distinguish among different squeaks, grinds and rings emitted as parts wear. Longer-term audio analysis will prove as reliable (and cheaper) than the competing visual inspection technology.

BART PERKINS, MANAGING PARTNER, LEVERAGE PARTNERS INC.

The biggest IT trend for 2007 is conquering IT economics. In 2007, we will see companies leverage Moore's Law instead of becoming victims of Moore's flaw – 'As unit cost goes down, business complexity goes up faster so that overall the total cost is higher.' Those who can do this will have extreme competitive advantage.

HOWARD A. RUBIN, SENIOR ADVISER, GARTNER INC.; PROFESSOR EMERITUS, CITY UNIVERSITY OF NEW YORK'S HUNTER COLLEGE; AND RESEARCH ASSOCIATE, MIT

In 2007, a new enterprise game will emerge that I call 'Infostructure Jenga.' An intense focus on enterprise intelligence during the first half of this decade has created data storms that have deluged most organizations with information about themselves, their customers and their suppliers. In 2007, we will begin to seek the answers to the question, 'Which information do we trust?'

RAYMOND KARRENBAUER, CHIEF TECHNOLOGY OFFICER, ING INSURANCE AMERICAS

EDITOR'S NOTE

No-brainers

SINCE MY CRYSTAL BALL is more tarnished than Siemens' reputation (the fraud probe of the German IT giant's telecommunications unit is getting down and dirty), don't expect me to weigh in on what you're likely to see happen in 2007. As I made crystal clear last year at this time, my inclination is to leave it to the experts we tap each year for that. This industry is just too unpredictable for me to even give it a shot.

Instead, I'm going to take a far safer and easier route with my second annual list of things that *won't* happen in the new year. Admittedly, I even blew that last year, since I predicted that Dell would not forgo its cozy relationship with Intel to appease customers who were clamoring for AMD processors. (Who knew Dell's cold, sickly, SEC-investigated fingers could ever be pried from Intel chips?) So I'll play it doubly safe and stick with a short list of no-brainers:

■ If Hewlett-Packard's attorneys brief Chairman and CEO Mark Hurd on an investigation that involves possible legal liability for the company, Hurd will not sell off $1.37 million worth of stock options the same day. That's what he did on Aug. 25, the day he was briefed by HP's lawyers on the pretexting investigation, and it looked pretty bad. Not even Hurd is brazen enough to try that again.

DON TENNANT is editor in chief of *Computerworld*. Contact him at don_tennant@computerworld.com.

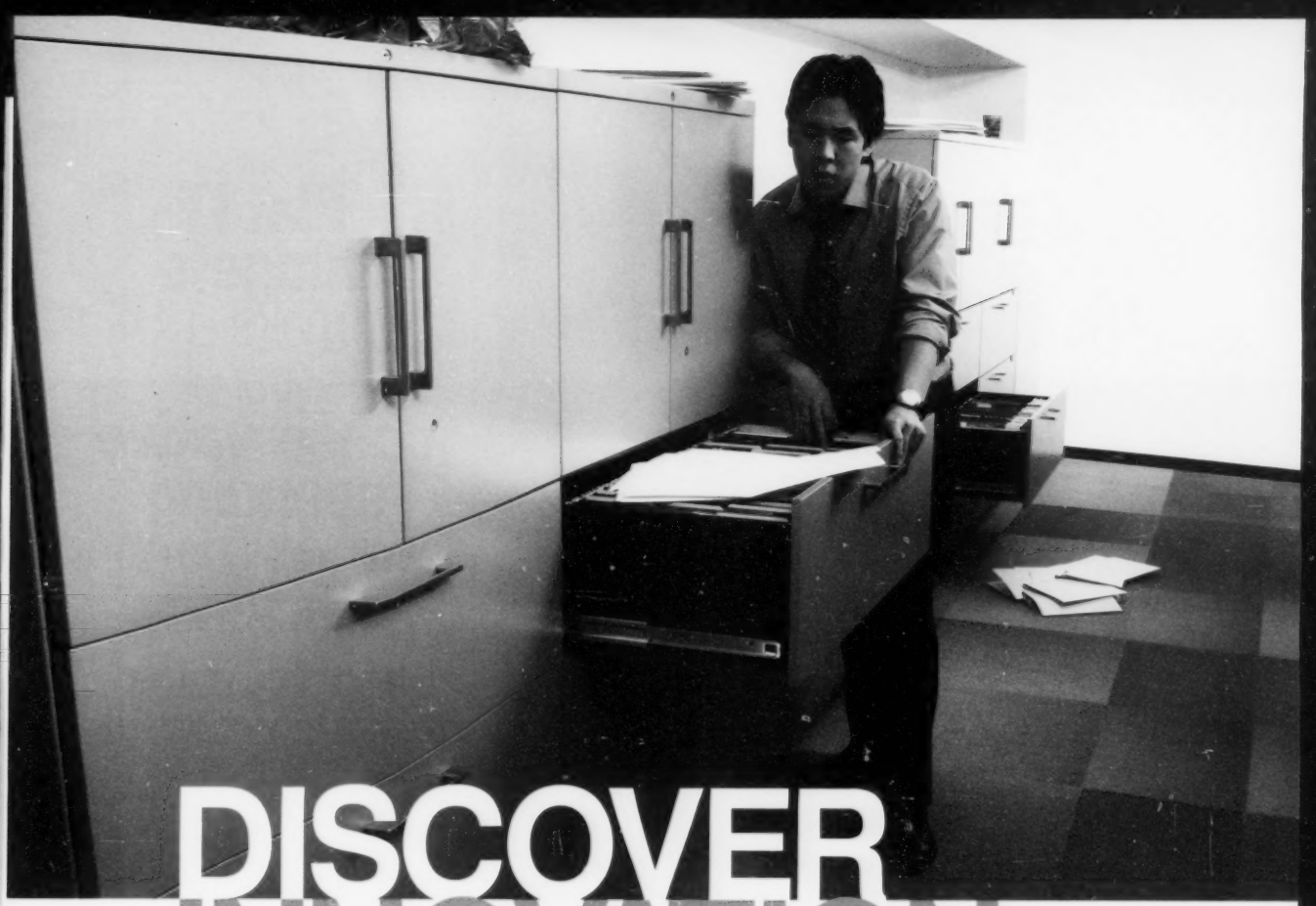
■ There won't be any "I love Costa Rica" bumper stickers sold in Nashua, N.H., next year. There's way too much perturbation over the fact that folks at the HP facility in Nashua are seeing their jobs get outsourced to Costa Rica. And some of the HPers aren't too thrilled with HP, either. "The people they have hired to replace us cannot do this job. They are trying to take my 10 years' experience and give it to them in six months," one Nashua HP worker whose job is being outsourced wrote me in an e-mail. "My only hope is that this whole thing crashes and burns after they have let us all go. Maybe then HP will realize that they made a big mistake."

■ Oracle will not take out any full-page ads with the stark, simple statement that "Computer Associates runs SAP," as it did last summer in order to, as an Oracle spokesman put it, "raise awareness of the complexity and costs associated with SAP implementations." Oracle's problem-plagued $25 million PeopleSoft rollout in the Palm Beach County School District in Florida, which is being blamed for employees being underpaid or not being paid at all, would make such finger-pointing even more obscene than it already was.

■ Microsoft CEO Steve Ballmer will not utter the phrase "undisclosed balance-sheet liability" in the context of what Linux users have incurred with respect to Microsoft's intellectual property. When he did that in November, just two weeks after the announcement of his technology collaboration agreement with Novell, he lost just about all the goodwill that agreement bought him. And Ballmer knows very well that goodwill toward Microsoft is far too rare to squander.

So much for the no-brainers. In the Forecast 2007 package that follows, special projects editor Ellen Fanning and her team have put together an insightful look into the management issues and technology challenges that, according to your peers, are what you should focus on in the coming year. It won't be easy. But the stuff that matters seldom is.

Don Tennant



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Revenue is up at Marriott International, yet Susan Zankman and Howard Melnick will be managing a smaller IT budget than last year, working to drive more efficiencies into their internal processes.

CHRIS HARTLOVE

THE NEW Austerity

Flat IT budgets will make 2007 a year of **conservative spending** with a focus on **efficiency.**

MARY BRANDEL

THE HOTEL INDUSTRY IS HOT, and Marriott International Inc. is one of the industry giants anticipating continued profits this year. In the third quarter, which ended Sept. 30, Marriott posted a 9.4% year-to-year increase in its worldwide revenue per available room, or RevPAR — a commonly used performance metric in the lodging industry. And from 2006 to 2009, the company expects diluted earnings per share, excluding its synthetic-fuel business, to rise at a compound annual growth rate of 15% to 25%.

However, the Bethesda, Md.-based company's technology budget for 2007 is lower than it was last year, according to Susan Zankman, senior vice president of information resources finance and management services at the $11.6 billion hotel chain. But that's OK with Zankman and Howard Melnick, senior vice presi-

dent of information resources application services. To them, investing more money in technology doesn't necessarily ensure success. "It's spending money in the right places," Melnick says. "It's having a tight lens on potential projects and seeing how they map to all the criteria. How does it impact the brand? Fit into the technology strategy? What is the financial impact?"

Rather than seeing the drop in available funds as a bad thing, Melnick and Zankman both expected and welcomed it because they see the coming year as a time to turn inward, drive more efficiencies into their internal processes, lower their maintenance and operating costs, and otherwise help fulfill Marriott's mantra of continual improvement. And where they do plan on spending, it's with an eye toward helping the business save money in the long run by adhering to a rigorous portfolio management process that ensures application reuse and convergence of technology investment with business strategy.

Plans include continued server consolidation, building out Marriott's virtual private network, expanding its use of integrated computer-telephony systems for customer service, rolling out its new Web-based labor management system, and training staffers to improve requirements-gathering and reduce project costs. "It's not a matter of doing fewer things, but finding different ways to work," Melnick says.

CONSERVATIVE SPENDING

At a time when many companies are cautiously optimistic about the economy and experiencing growth through acquisition or expansion into global markets, even those with the sunniest outlook have adopted a conservative approach toward technology spending, says Andrew Bartels, an analyst at Forrester Research Inc. Some of this is the result of the downturn earlier in the decade, which forced companies to adopt a wiser and more mature approach to technology spending. And some, Bartels says, is the product of the cyclical nature of technology investment, which goes through times of expansion and growth followed by periods of refinement and digestion.

So despite Forrester's prediction that technology spending budgets will be up 5%, this year "will be a period of persistent austerity, with continued cautiousness and conservativeness in spending," Bartels says. Meanwhile, *Computerworld*'s quarterly Vital Signs survey shows that the percentage of IT executives who expect a budget increase dropped from 51% last year to 41% this year (see charts at right).

During this time, Forrester is urging CIOs to do exactly what Marriott is doing — cutting what Forrester calls their "Moose" spending, or the maintenance and operations of the IT organization, systems and equipment. "Typically, Moose represents 70% to 80% of IT spending," Bartels says. "We're advising companies to keep that spending flat compared to revenues and even in absolute terms."

Doing so will free up more resources for spending on new initiatives and bring desired credibility to the IT departments and its leader, he says. "Now you can be identifying and investing in new technologies to support or solidify the business, such as security, risk management and disaster recovery," Bartels says.

Barbara Gomolski, an analyst at Gartner Inc., agrees that there's plenty of low-hanging fruit when it comes to increasing the efficiency of many companies' IT infrastructures, such as adopting voice-over-IP (VoIP) networks, redesigning data centers and paring down underutilized applications.

"You can consolidate all the hardware you want, but you can still have an administrative nightmare because you're running 27 instances of Oracle," she points out. "The next phase is how to deal with your application overload, and it's harder to consolidate that because you have to involve the business people more."

Other ways to cut Moose spending include selective outsourcing, asset management, server consolidation, server virtualization, standardization, retiring redundant equipment, tracking and adjusting software licenses, and using best practices around project management and development, Bartels says.

PREDICTION

"Product life-cycle management will remain at the top of our IT investment list at Boeing in 2007. We continue to invest in PLM in order to improve Boeing productivity as measured by shortening of time-to-market cycle time, enabling concurrent design across geographical and company boundaries, encouraging design reuse and supporting design anywhere, build anywhere capabilities.

SCOTT GRIFFIN, CIO, THE BOEING CO.

MORE IS LESS

A case in point is CitiStreet LLC in North Quincy, Mass. Although it plans to increase its technology budget this year, "we're definitely getting very austere in what we want to pay for hardware and hardware maintenance," says Barry Strasnick, CIO at the global benefits provider. CitiStreet's current hardware maintenance costs are more than $1 million annually, and the company's goal is to reduce that by almost two-thirds while also enabling better availability, he says.

Strasnick says he'll accomplish that by aggressively moving from a Unix-dominated architecture to a Linux/Intel hardware model, leading to savings both in terms of hardware acquisition and maintenance. "The costs quoted for hardware maintenance on Intel/AMD computers are significantly less than for computers that could run that vendor's instance of Unix," Strasnick says. He plans to migrate from Hewlett-Packard Co. and Sun Microsystems Inc. Unix servers to dual- and quad-core Intel- or AMD-based blades running Red Hat Inc.'s version of Linux.

Other plans at CitiStreet include improving response time and availability for the company's J2EE applications with software from Azul Systems Inc. and enhancing its host-based intrusion-detection system by working with security software company Third Brigade Inc.

The technology budget is also on the rise at Dick's Sporting Goods Inc. This is mainly attributable to the Pittsburgh-based retailer's aggressive growth plan, which entails significant investments in its stores, distribution centers and back office, according to Eileen Gabriel, CIO at Dick's. However, Gabriel finds that more than ever, there's increased discussion around exactly which technology projects the company will invest in.

"Just the word *investment* I think is important," she says. "We're taking a dollar of shareholder money and putting it into technology versus investing in a

VITAL SIGNS

Our survey indicates IT budgets will be mostly flat next year, although worries about those budgets will grow.

Each quarter, Computerworld surveys a select group of IT executives on topics ranging from budget plans to staffing levels. Results appear in our regular Vital Signs feature.

BUDGET BUSTERS

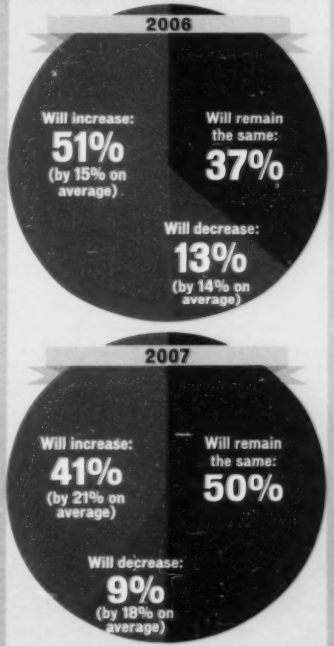
The top five management challenges for 2007:

1	Budget constraints
2	Managing/developing personnel
3	Managing projects
4	Regulatory compliance
5	Dealing with mergers or acquisitions

SOURCE: 252 RESPONDENTS TO COMPUTERWORLD'S VITAL SIGNS SURVEY, FIRST-QUARTER 2007

FLAT BUYERS

Half of all respondents expect their 2007 budgets to remain the same. Just one year ago, the picture was quite different:



NOTE: PERCENTAGES MAY NOT ADD UP TO 100 BECAUSE OF ROUNDING.
SOURCES: 338 RESPONDENTS TO COMPUTERWORLD'S FIRST-QUARTER VITAL SIGNS SURVEY 2006 AND 252 RESPONDENTS TO THE FIRST-QUARTER VITAL SIGNS SURVEY 2007

new store, so we should expect to get a return at least as good as any other investment in the company."

For Gabriel, that will mean increased attention to project management, and not just what falls into the IT group's traditional territory. "My No. 1 challenge is figuring out the other variables that are going to come into play [that could lead to project failure] and making sure we're covering those," Gabriel says. This includes things like ensuring that business processes are aligned correctly and that the right people are involved with the project, including those from the business side. "In the past, IT played ostrich a little bit," she says. "But we can no longer have the mentality that if we don't get a return, IT isn't at fault."

Gomolski predicts that IT departments will have a bigger role to play in ensuring that investments pay off, which will increase project scrutiny in 2007. "Traditionally, we've been in the mode that any project the business would come up with was considered legitimate if it passed a basic ROI test," she says. "Now, there's more competition for discretionary IT funds, so now it's, 'Why should we pick your project over the other guy's?' "

IT'S HOW YOU SPEND IT

Even companies with staggering IT budgets are taking a shrewd approach to technology spending. At FedEx Corp., which has spent slightly more than $1 billion annually on IT worldwide in the past few years, the philosophy is to work with what you've got before asking for more. "We don't need more money," says Sherry Aaholm, executive vice president of IT at Memphis-based FedEx. "We just need to be more effective in how we utilize technology in the organization."

In fact, FedEx just recently renewed a program initiated in 2003 to drive the best use of IT dollars. The program — which was slated to wrap up at the end of 2006 — encourages the IT group to focus on six key areas when starting technology initiatives: cost-effectiveness, speed to market, innovation, service levels, business alignment and staff development.

Not only was the program successful, but employees also asked for it to be relaunched this year, Aaholm says. "The business entrusts us with significant dollar spend, and we need the appropriate tools to ensure that we're doing the right thing with that money," she says.

FedEx's IT organization will also look for places to mine more value out of its current environment. For instance, it will drive toward more standardization of its software and hardware, Aaholm says, including moving off legacy systems to newly defined standard platforms.

Gomolski says standardization is even more effective than hardware consolidation in terms of minimizing maintenance costs. "During the last downturn, environments that worked on standardizing desktops, servers, networks and architectures were surprised at how much of a difference that made," she says. The main reason, she says, is the reduction in labor costs.

For some companies, a flat spending outlook provides relief from having too much on the project plate. Gordon Gregory, vice president of technology at Mazuma Credit Union in Kansas City, Mo., says the flat to slightly smaller budget expected at the credit union this year will be "kind of liberating."

"I look forward to just having time to digest what we've got," he says. "We've added a lot in the last few years, and this gives us an opportunity to stop and make sure we're making the best use of what's in place." Past investments include VoIP, new branch systems, an optical imaging system and a new core bank processing system.

Gregory says he also looks forward to spending more time planning, consulting and doing process improvements — "things that take time and not dollars." In addition, smaller budgets give the department the chance to figure out if it can accomplish something without spending money. "It will be a year for consolidation and using what we've already gotten rather than looking for new things," Gregory says.

And that seems to echo what many IT departments have in mind for 2007. "You don't have to wait for bad times," Marriott's Melnick says. "From our perspective, you always want to be looking for efficiencies and process improvements." ◗

Brandel is a Computerworld *contributing writer. Contact her at marybrandel@verizon.net.*

3 Questions For Charles Feld

Charles Feld is executive vice president of portfolio development at Electronic Data Systems Corp., where he's responsible for the company's service offerings. From 1983 to 1992, Feld was the vice president of MIS at Frito-Lay Inc., where he orchestrated the adoption of handhelds by 10,000 salespeople, a move that streamlined inventory management while freeing up salespeople to focus on selling. Feld has also done stints as a temporary CIO at Burlington Northern Santa Fe Corp., Delta Air Lines Inc. and First Data Corp. In 1992, Feld launched The Feld Group Inc., a CIO consultancy that was acquired by EDS in January 2004. He spoke recently with Computerworld's *Thomas Hoffman.*

Which IT story took you by surprise in 2006, and why? The thing that surprised me was the rapid change in the way people are rushing to modernize their businesses. I was thinking this would occur in '07 or '08, but it began in '05 and '06.

What surprises are in store for IT users in 2007? The biggest issue for them is going to be the flip side of what we just talked about. Very few organizations are in a position of implementing business modernization in the time frame that customers want it. People have had their foot on the brakes for so long, and it's not going to happen in one budget cycle or one calendar year to transform this. It's going to take companies years to get their businesses modernized, to move work around [regionally] and extend their supply chains. Most IT organizations are going to get caught in not having that loving feeling again because they won't be able to respond quick enough [to business demands].

What will be the biggest IT story of the new year? The thing that we've been fighting for the 40 years I've been in the business. There's been a huge gap between business owners and IT in terms of knowledge, passion, etc. That gap is narrowly closing in companies where CIOs and the rest of the CXOs really come together in a shared vision of what needs to happen. It's going to happen in more than one in 10 companies; it's starting to happen now. I'm very optimistic that more and more stories will be told about how they're fused together to create a 21st century company.

DON'T FORGET Innovation

The next 12 months might be a time for cautious technology spending, but according to Andrew Bartels, an analyst at Forrester Research, the years 2008 and 2009 will usher in a new era of technology innovation and investment. At that point, "CIOs will shift from being hammered for spending too much to being hammered for being too slow."

That's why Forrester is advising CIOs to continue funding research and development efforts and to pilot and test new technologies in 2007. For some companies, that means carving out a piece of the budget targeted at innovation. Dick's Sporting Goods, for instance, has recently started to set aside funds that are intended for pilot tests of new technologies the company wants to investigate but from which it expects no immediate return. "Until recently, we didn't allocate money for innovation," says Eileen Gabriel, CIO at Dick's. "All projects had to have a return, and we had a scoring mechanism to determine which projects to fund."

FedEx accounts for innovation when it builds its technology budget; in fact, it's one of the six target areas used to assess projects. "You can be so focused on driving costs down that you lose sight of what you can be doing in the innovation space," says Sherry Aaholm, executive vice president of IT at FedEx. "I've been in other companies where it's potentially one of the areas that gets cut first."

However, since the downturn of 2003, FedEx has also developed a method to control innovation costs. Employees are encouraged to submit ideas to a Web site, and those with the highest potential are selected to be pursued at FedEx Labs, where five or six prototypes or pilot tests can be happening at one time.

"Before that, everybody innovated, and that can be bad," Aaholm says. "You end up with a smorgasbord of technologies that adds to your cost and detracts from your ability to whittle down standards. This is more controlled as opposed to doing everything under the sun."

In 2007, FedEx plans to continue closely monitoring the radio frequency identification market. "Real-time information is so important to what we do, and we're looking at whether [active RFID technology] or variations of it have value in our world," Aaholm says.

Marriott plans to expand its use of data warehouse appliances that deliver 10 to 100 times the performance at half the cost of traditional data warehouses. It is also exploring grid technology. "It's a win for customers because queries are running multiple times faster, and it's cheaper because it uses less CPU time" and fewer direct-access storage devices, says Howard Melnick, senior vice president of information resources application services. Marriott is also looking at expanding its mobile check-in pilot on a global scale to allow customers to check into hotel rooms from their handheld devices. By partnering with Microsoft and Intel, the company was able to minimize investment costs, says Susan Zankman, senior vice president of information resources finance and management services.

– MARY BRANDEL

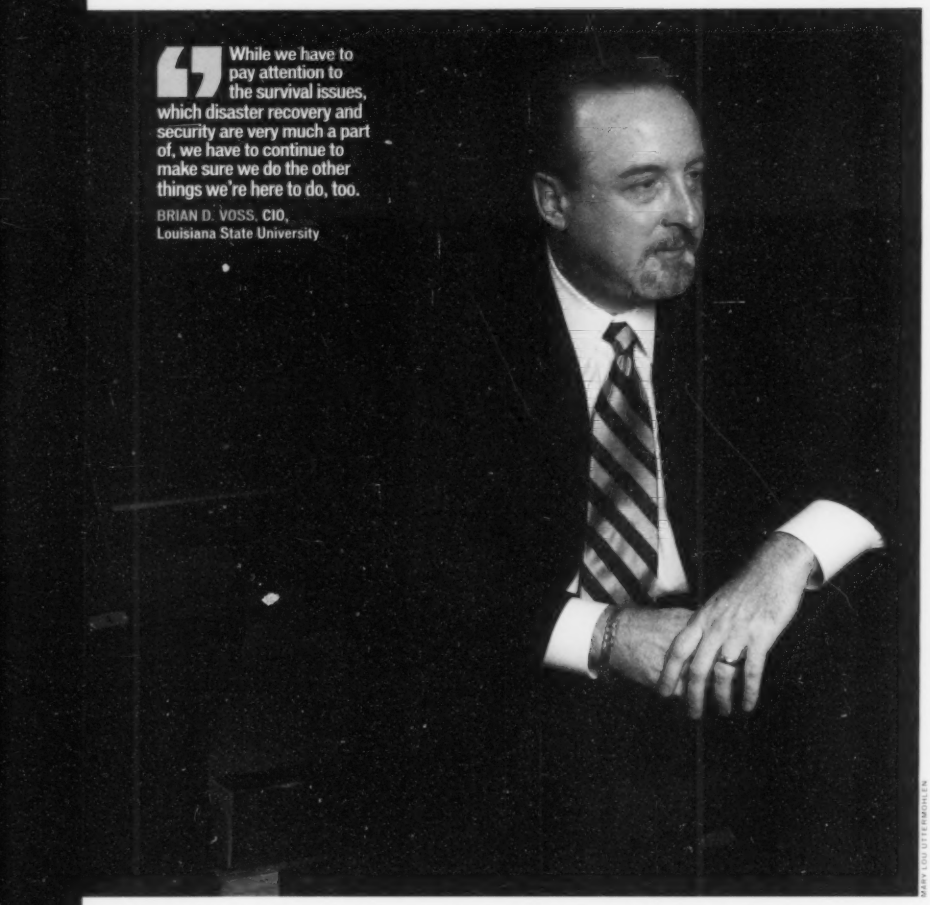
IBM

_INFRASTRUCTURE LOG

_DAY 22: We've taken "add an app, add a server" to the next level: complete insanity. The servers require constant attention. Our fingers are cramping from rebooting. Haven't left the office in days.

_DAY 23: "Insane" doesn't begin to describe it. Around-the-clock maintenance is turning our staff into an army of zombies. Hey, even the undead get time and a half.

_I don't want to spend another night in the server room. I want control. I want an i.



"While we have to pay attention to the survival issues, which disaster recovery and security are very much a part of, we have to continue to make sure we do the other things we're here to do, too.

BRIAN D. VOSS, CIO, Louisiana State University

MARY LOU UTTERMUELEN

A DANGEROUS World

New security **threats** demand **new thinking** and solid **executive backing.**

MARY K. PRATT

THE IT folks at Louisiana State University have had some tough tests lately.

They survived Hurricane Katrina with their own systems in Baton Rouge intact, only to see that campus turned into an emergency work site used by rescue agencies and the University of New Orleans.

Then they found themselves combating a homegrown phishing scam executed by a student posing as the university registrar.

Those incidents were on top of the everyday challenges facing LSU's IT department, which is also charged with maintaining the open environment that academic institutions consider key to preserving a culture that promotes sharing and the free exchange of ideas.

"While we have to pay attention to the survival issues, which disaster recovery and security are very much a part of, we have to continue to make sure we do the other things we're here to do, too," says Brian D. Voss, LSU's CIO.

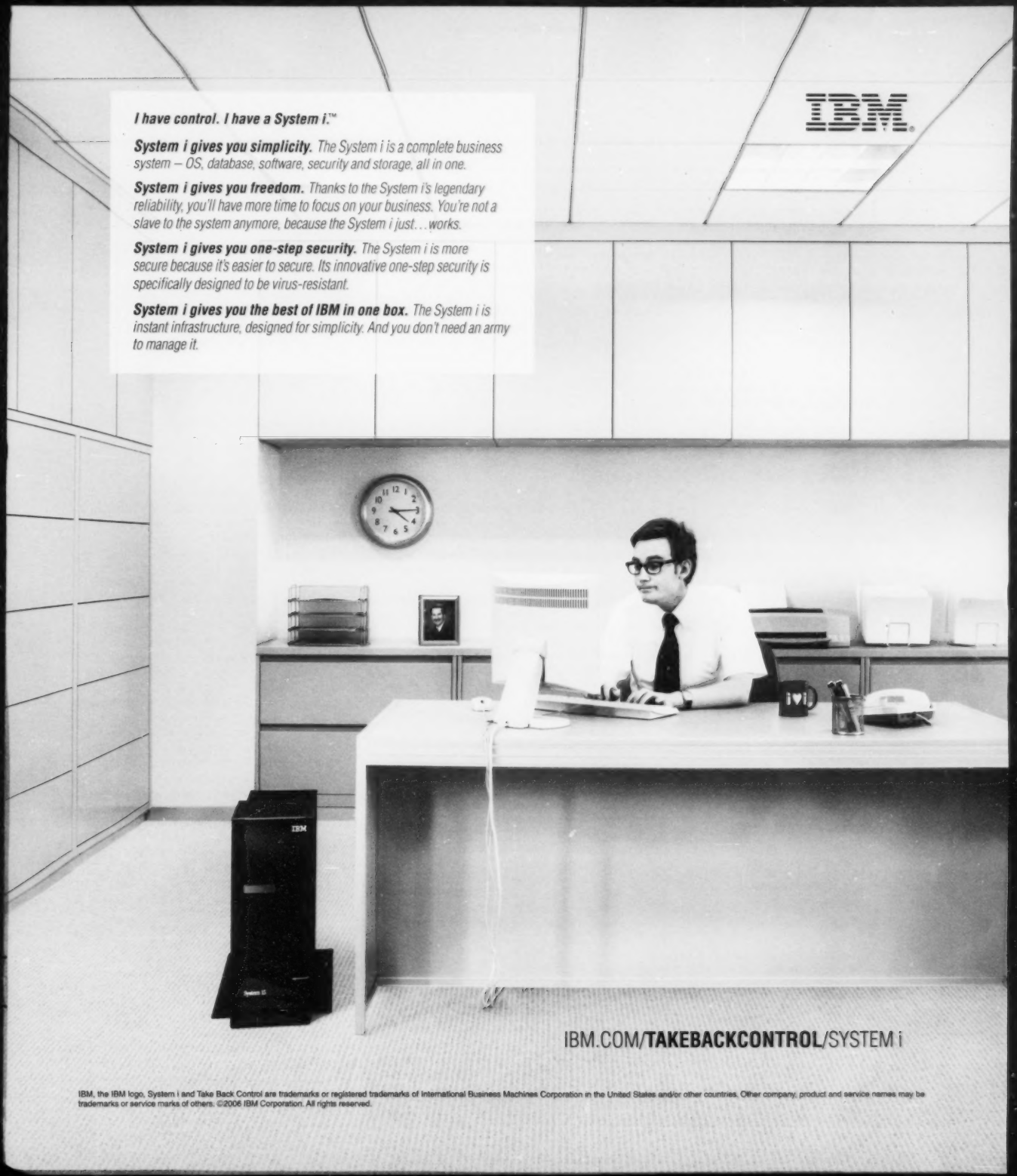
It's a dangerous world out there, and IT leaders like Voss know it. Last year's headlines about calamities and breaches have put disaster recovery and security at the top of IT agendas.

In *Computerworld*'s Vital Signs quarterly trend survey, 31% of IT executives placed disaster recovery/continuity planning at the top of their priority lists, while 27% identified data security/privacy as their No. 1 issue. Combined, these results show how IT leaders have a stronger focus than ever before on data integrity as they head into the new year.

MATURATION, NOT JUST CONTINUATION

To be fair, most IT executives have had an eye on these areas for many years. As a result, the way leading companies approach business continuity planning

Continued on page 20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Continued from page 18

and security is evolving, increasingly moving these critical areas from project mode to more of a process mentality.

"I see it as a maturation of the processes," says Scott Laliberte, global product lead for the security assessment practice at Protiviti Inc., a Menlo Park, Calif.-based firm that provides risk consulting and internal audit services.

Several factors are contributing to this maturation, Laliberte says.

On the data security and privacy front, the Sarbanes-Oxley Act, the Payment Card Industry Data Security Standard and the ISO 17799 best practices standard are among the forces pushing companies to enact tighter controls. Security breach notification laws have also driven IT directors and business executives to give the issue more attention and resources than in prior years.

Meanwhile, companies are learning hard lessons about business continuity from organizations that suffered through the 9/11 terrorist attacks and Hurricane Katrina.

In addition, technology vendors are delivering more mature products to help IT executives accomplish what they need to do to ensure overall data integrity.

"Companies are looking to improve the maturity of their processes and investing in that on a risk-based approach," Laliberte says.

PREDICTION

"Identity management will increasingly become the linchpin to both privacy and security compliance in 2007, but it'll continue to be the golden goose that eludes the grasp of large enterprises because of the complexities of integrating high numbers of distributed databases and applications.

JAY CLINE, PRESIDENT OF MINNESOTA PRIVACY CONSULTANTS AND *COMPUTERWORLD.COM*'S PRIVACY COLUMNIST

AN EVOLVING THREAT

The risks out there are significant. Just look at the area of security.

"The threat profile is evolving from a teenage hacker to a well-financed, determined intruder that may be working for organized crime, a hostile foreign government, a terrorist group or a competitor. These are people who are willing to spend a considerable amount of time and money to accomplish their objectives," according to Jonathan G. Gossels, president and CEO of SystemExperts Corp., a network security consulting firm in Sudbury, Mass. "Further, their objectives may be to subtly, rather than blatantly, impact a system, so the subversion may go unnoticed for a long time."

That's in addition to the worms, viruses, phishing scams and old-fashioned hacking attacks that remain pervasive even today.

Companies also need to worry about their own workers, who often inadvertently and sometimes maliciously handle data in ways they shouldn't. They might e-mail sensitive information without encryption or deliberately walk off with a USB stick containing intellectual property.

Yet, Gossels says, "many companies still think in terms of 'If we make this inconvenient, the hacker will go somewhere else.'"

Many companies also have plenty of weaknesses in their infrastructures, adds Dick Mackey, vice president of consulting at SystemExperts. The ID information provided by customers may not be unique enough to identify them securely, user authentication may be lax, or workers may not be fully aware of their duties to keep information secure.

NEW THREATS, NEW ACTION

Voss says he hired a firm in 2005 to conduct a security audit of LSU's IT infrastructure; although it gave the school a "fair" rating, the auditor still listed 90 areas that needed improvement.

Voss is taking action. He's ridding most systems of Social Security numbers. He created the positions of security officer, deputy security officer and disaster recovery/business continuity officer. And he had his team develop a strategic security plan.

Such approaches demonstrate an overarching trend in security as we head into 2007: the integration of security into all aspects of IT.

Gossels points out that companies are increasingly planning security reviews, application vulnerability testing and penetration testing as part of their regular operations, budgeting for them as they do for other fixed costs, such as electricity.

Despite the tighter IT budgets expected for 2007, Mackey says he sees companies spending more money on security, although it's often listed with other items and not necessarily tallied together under one line item. It's an accounting practice that reflects how security is becoming integrated as part of other processes, such as new application development.

"Folks are starting to realize they have to take a business approach to security," Laliberte says.

Consider what's happening at ChoicePoint Inc., an Atlanta-based data services provider that revamped its approach after a major breach in 2004.

"The approach companies take around security and risk management is moving beyond the idea that it's just a technical thing to something we all have to be aware of," says Darryl Lemecha, CIO and senior vice president of shared services at ChoicePoint.

Employees there receive ongoing training and technology tools such as automated e-mail encryption, he says. Systemwide software now helps catch security breaches, too. The company has also established a board-level privacy committee and a senior-level security advisory committee.

"You're creating a large [security] ecosystem," Lemecha says, adding that he believes other companies will take similar steps in the year ahead.

ChoicePoint isn't just taking a top-level look at security, says vice president of information security Aurobindo Sundaram. He says security and privacy processes are getting embedded at much earlier levels. He points to data truncation as an example. Security workers there are cutting out unnecessary data requests from workers processing various business tasks.

VITAL SIGNS

Survey respondents are solidly focused on keeping their corporate data safe and secure in 2007.

TOP PRIORITIES

IT executives reported their top three IT project priorities in the next year are:

1. **Disaster recovery/ continuity planning**
2. **Data security/privacy**
3. **Data management implementation/upgrade**

SOURCE: COMPUTERWORLD'S VITAL SIGNS SURVEY, FIRST QUARTER 2007, 232 RESPONDENTS

3 Questions For Robert Lucky

Robert W. Lucky is an engineer and writer. He was a senior researcher first at Bell Laboratories, then at Bellcore and later at Telcordia Technologies Inc. At Bell Labs, he invented the adaptive equalizer – a technique for correcting distortion in telephone signals that is used in all high-speed data transmissions today. In 1987, he received the Marconi Prize for his contributions to data communications. He is author of the popular book Silicon Dreams *(St. Martin's Press, 1989). He spoke recently with* Computerworld's *Gary Anthes.*

Which IT story took you by surprise in 2006, and why? YouTube is bought by Google. I didn't know such things – instant billionaires – could still happen, but the greatest thing about the Internet architecture is that it empowers the periphery and unleashes tremendous innovation, mostly by young people who would never be employed by the traditional media. It harkens back to Napster and the lasting contribution by Shawn Fanning of peer to peer, even as his site was sued to death.

Which technology will make a difference in 2007? [MIT's] Nicholas Negroponte's $100 laptop [is] a beautiful design, reminiscent to me of the iPod, and they have just about made the cost goal. Also, it's a feel-good story that could change the world for the better by channeling the energy of the young people in developing countries and connecting them with the world as they have never been connected before.

What will be the biggest IT story of the new year? I'll pass. We're always wrong about such things. Some things are surprisingly predictable – Moore's Law and the fast decrease in cost of both storage and communications. But the great things to me are the social inventions like Napster, eBay, YouTube, and I'll include Google.

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ANDRE MENDES
Chief Information Officer, Special Olympics International

V. JAMES ONALFO
Deputy Commissioner and Chief Information Officer, New York City Police Department

FILIPPO PASSERINI
Global Services Officer and Chief Information Officer, The Procter & Gamble Co.

LYNN VOGEL, PH.D.
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SUNDAY, MARCH 4, 2007

Registration Open: 10:00am – 7:30pm

Noon – 5:00pm **Pre-conference Golf Outing** *Sponsored by* FUJITSU

7:00pm – 9:00pm **Pre-conference Welcome Reception**

MONDAY, MARCH 5, 2007

Registration Open: 7:00am – 6:30pm

7:00am – 8:00am **Breakfast**

8:00am – 8:15am **Welcome and Opening Remarks**

Julia King, Executive Editor, Events
and National Correspondent, Computerworld

Don Tennant, Vice President
and Editor in Chief, Computerworld

Patrick McGovern, Chairman of the Board,
International Data Group

8:15am – 9:00am

Opening Visionary Address
H. James Dallas, Senior Vice President and Chief Information Officer,
Medtronic, Inc.

9:00am – 9:45am

Featured Presentation
Bruce Goodman, Senior Vice President and Chief Service
and Information Officer, Humana Inc.

9:45am – 10:00am **Networking Break**

10:00am – 10:30am

Featured Presentation
Donna Seymour, Chief Information Officer, U.S. Maritime Administration

"... the nature of Premier 100 is why I keep returning ... a chance to learn about new ideas and best practices ..."

Tim Stanley
Senior Vice President
& Chief Information Officer
Harrah's

MONDAY, MARCH 5, 2007 (continued)

10:40am – 11:10am **Concurrent Sessions / IT User Case Studies**

11:20am – 11:50am **Concurrent Sessions / IT User Case Studies**

Noon – 12:30pm **Concurrent Sessions / IT User Case Studies**

12:30pm – 2:00pm **Lunch in the Networking Lounge**

2:00pm – 2:45pm **Panel Discussion: Beyond the Crystal Ball: Real-Life Strategies for Creating a Flexible, Future-Proof IT Infrastructure**

Moderator: Julia King, Executive Editor, Events and National Correspondent, Computerworld

Panelists: Rick King, Executive Vice President and Chief Operations Officer, Thomson North American Legal; Janice Malaszenko, Vice President and Chief Technology Officer, Information Management, Xerox Corp.; Williiam Pence, Senior Vice President and Chief Technology Officer, Napster LLC; Barry Shuler, Senior Vice President, IT Strategy and Chief Technology Officer, Marriott International, Inc.

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2:45pm – 3:15pm **Featured Presentation**
Karyn Mashima, Senior Vice President, Strategy and Technology, Avaya

3:15pm – 3:30pm **Networking Break**

3:30pm – 4:15pm **Featured Presentation**
Steve Ellis, Executive Vice President, Wholesale Service Group, Wells Fargo

MONDAY, MARCH 5, 2007 (continued)

4:15pm – 4:45pm **Featured Presentation**

4:45pm – 5:25pm

Closing Address

Filippo Passerini, Global Services Officer and Chief Information Officer, The Procter & Gamble Co.

TUESDAY, MARCH 6, 2007

Registration Open: 7:30am – 5:00pm

7:00am – 8:00am **Breakfast and Focused Networking**

8:10am – 8:15am **Opening Remarks**

Julia King, Executive Editor, Events and National Correspondent, Computerworld

8:15am – 9:00am

Opening Visionary Address

André Mendes, Vice President and Chief Information Officer, Special Olympics International

9:00am – 9:45am

Featured Presentation

V. James Onalfo, Deputy Commissioner and Chief Information Officer, New York City Police Department

9:45am – 10:00am **Networking Break**

10:00am – 10:30am

Featured Presentation

Yuri Aguiar, Senior Partner, Chief Technology Officer, Ogilvy & Mather Worldwide, New York

10:40am – 11:10am **Concurrent Sessions / IT End User Case Studies**

11:20am – 11:50am **Concurrent Sessions / IT End User Case Studies**

11:50am – 12:30pm **Concurrent Sessions / IT End User Case Studies**

12:30pm – 2:00pm **Lunch in the Networking Lounge**

"... allows me to talk to other CIOs with similar challenges ... sparks conversations on issues and how they will impact us ..."

Scott Griffin
Vice President
& Chief Information Officer
Boeing

TUESDAY, MARCH 6, 2007 (continued)

2:00pm – 2:45pm

Panel Discussion: Developing Talent As If Your Business Depended On It

Moderator: Thornton A. May, Futurist and Computerworld Columnist

Panelists: Stephen Olive, IDS Information Solutions Vice President, Chief Information Officer, Raytheon; Eileen Gabriel, Senior Vice President and Chief Information Officer, Dick's Sporting Goods

The most sought-after IT professionals in 2010 will be "versatilists" - those with a technology background who also know the business sector inside and out, can architect and carry out IT plans that will add business value, and can cultivate relationships both inside and outside the company. This panel of Premier 100 honorees discuss how and why they've made recruiting and grooming next-generation IT leaders a top priority.

2:45pm – 3:30pm

Featured Presentation

Lynn Vogel, Ph.D., Vice President and Chief Information Officer, University of Texas M.D. Anderson Cancer Center

3:30pm – 3:45pm **Networking Break**

3:45pm – 4:30pm

Panel Discussion: Stepping Up To The Plate: Defining Moments in IT Leadership

Moderator: Don Tennant, Vice President and Editor in Chief, Computerworld

Panelists: Dale Frantz, Chief Information Officer, Auto Warehousing Co.; Louis Gutierrez, Principal, Exeter Group, former Chief Information Officer, Commonwealth of Massachusetts; J. Clark Kelso, Chief Information Officer, State of California; Darryl Lemecha, Chief Information Officer and Senior Vice President of Shared Services, ChoicePoint

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TUESDAY, MARCH 6, 2007 (continued)

3:45pm – 4:30pm

Panel Discussion: Stepping Up To The Plate: Defining Moments in IT Leadership (continued)

One publicly blew the whistle on sleazy sales tactics at Microsoft. Another resigned his high-level post to protest inadequate IT funding. A third signed on to right the wreckage of a collapsed IT department in a near bankrupt state. The fourth oversaw his company's transformation from a poster child of security breaches to a data security role mode. Computerworld Editor in Chief Don Tennant gets to the heart of four defining moments in IT leadership.

4:30pm – 5:25pm

Closing Visionary Address

Geoffrey Moore, Bestselling Author of *Dealing with Darwin*, *Crossing the Chasm*, and *Inside the Tornado*; Managing Director, TCG Advisors and Venture Partner, Mohr Davidow Ventures

7:00pm – 7:30pm

Cocktail Reception

7:30pm – 9:30pm

Gala Evening, "Best in Class" Awards and Honoree Recognition, Entertainment

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What is the one item that best describes your involvement in the IT purchase process?
- ❑ Authorize/approve purchase
- ❑ Evaluate/recommend products, brands, vendors
- ❑ Specify features/technical requirements
- ❑ Set budget for expenditures
- ❑ Determine need to purchase
- ❑ Create IT strategy
- ❑ None of the above

Number of employees in your entire organization (ALL locations):
- ❑ 20,000 or more
- ❑ 10,000 - 19,999
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ 100 - 499
- ❑ 50 - 99
- ❑ Less than 50

What is your organization's annual IT/IS budget for all IT/IS products?
- ❑ $1 Billion or more
- ❑ $500 Million - $999.9 Million
- ❑ $100 Million - $499.9 Million
- ❑ $50 Million - $99.9 Million
- ❑ $10 Million - $49.9 Million
- ❑ $1 Million - $9.9 Million
- ❑ $500,000 to $999,999
- ❑ $250,000 to $499,999
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- ❑ None of the above

What is the estimated annual revenue of your entire organization?
- ❑ $10 Billion +
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What is your organization's MOST mission critical development/implementation project this year?
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- ❑ Data Management
- ❑ Mobile & Wireless
- ❑ Enterprise Infrastructure/Data Center Buildout/Consolidation
- ❑ Network Infrastructure/Storage
- ❑ Security
- ❑ Application Development and Integration (Web services/EAI)
- ❑ Compliance

What is your organization's SECOND-MOST mission critical development/ implementation project this year?
- ❑ Business Intelligence/ BPM/Customer Analytics
- ❑ Data Management
- ❑ Mobile & Wireless
- ❑ Enterprise Infrastructure/Data Center Buildout/Consolidation
- ❑ Network Infrastructure/Storage
- ❑ Security
- ❑ Application Development and Integration (Web services/EAI)
- ❑ Compliance

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"Security and privacy are evolving, and I definitely think it's more proactive than it has been in the past. We're now looking forward to what's coming and what we're going to do," says Kimberly Van Nostern, chief information security officer at Allstate Corp.

CONTINUITY PLANNING REDUX

Van Nostern says the Northbrook, Ill.-based insurer has taken that approach not only with security but also with disaster recovery and continuity planning. Like others, she says disaster recovery is moving from something companies think about once when putting together a plan to a process that's much more ingrained in the enterprise.

Recent events have highlighted the need for that new thinking, she says.

"9/11 was definitely a wake-up call for everyone. And Hurricane Katrina — that was another impetus for continued diligence around business continuity planning for our enterprise," Van Nostern says. "We now plan for the worst possible scenario."

Take, for example, Allstate's planning for a potential flu pandemic. Van Nostern says that even if a pandemic never occurs, the plan helps prepare the company for other potential crises.

"Planning for the pandemic isn't just planning for that; it's planning for any scenario where your workers can't come to work," Van Nostern says.

For that reason, IT has learned to think about disaster recovery as more than just backup centers, she says. Planning for the pandemic has required the IT, human resources and facilities departments to work together to develop a plan that addresses technical as well as business unit issues, Van Nostern says.

Others are taking a similar approach.

Patrick Luce, deputy CIO at the Los Angeles Unified School District, is working on a new continuity plan as part of the organization's switch to a more modern ERP system.

Luce knows he has to think not only about earthquakes but also about the more routine events, such as power outages and severe weather, that can shut down part or all of his district's operations.

He also knows he has to bring in other departments as he develops this continuity plan, a lesson reinforced by experience. Luce says the district is just closing out the books on damage done during a 1991 earthquake. That process has proved the importance of bringing finance folks and other business leaders into the planning process so that they know what information they will need to best handle the crisis, such as the financial figures required when applying for government emergency relief funds.

But not all companies are at that point yet, says Michael Porier, a director in Protiviti's technology risk consulting division. He says many companies still dedicate time and resources to update their continuity plans only occasionally and if they feel that the risks warrant it.

"Right now, the challenge is taking it from a project mentality to a process mentality, because the business continuity plan has to be formalized and integrated into the business process," he says.

Porier says he expects some of that in the future. He says more mature organizations are already addressing business continuity on an ongoing basis, so as they plan infrastructure upgrades or go through mergers, they consider how they're going to sustain the organization during a crisis.

Moreover, Porier says, many companies aren't spending what they must to develop and maintain continuity plans.

"Our biggest challenge is fighting complacency. Companies know the risk is there but don't want to allocate enough funds to put a robust plan in place," he adds.

"We've seen year after year more and more attention, more professionalization of the people doing the work and more resources put into this area," says Bruce Brody, vice president for information assurance at CACI International Inc., an IT and network services provider in Arlington, Va. "The awareness has grown, but we're still climbing that mountain. We're not near the top. But in 2007, we'll still see positive ascent up that mountain."

Pratt is a Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

PREDICTION

"If you look at actual skills pay patterns, the most growth categorically has been in enterprise business applications, Web/e-commerce development and applications development in general. And these are accelerating into 2007. Also hot in the coming year will be business intelligence and analytics, storage-area networking and enterprise project management skills. Expect a surge in IT security skills pay late in the year following a few years of relatively flat pay performance.

DAVID FOOTE, CEO AND CHIEF RESEARCH OFFICER, FOOTE PARTNERS LLC

Five **Security Systems** to Watch

Data integrity tools and systems topped the list of the most critical technologies for 2007 among the IT executives who participated in *Computerworld*'s Vital Signs trends survey for the first quarter of 2007.

Their plans for 2007 mirror a marketplace trend: As IT executives place data recovery and business continuity planning, as well as data security and privacy, at the top of their priority lists for the year, they expect that technology will drive many of the upcoming initiatives.

Here are what some IT leaders consider five key technologies for the new year:

1. Identity management systems. Having a centralized repository and management system enables organizations to better know who has access to what, says Jonathan G. Gossels, president and CEO of SystemExperts.

2. Smart cards used to provide secure access to networks. Bruce Brody, vice president for information assurance at CACI International, says federal employees and contractors will be moving toward these cards over the next several years, and they will integrate them with identity management systems.

3. Content and e-mail filtering software. These applications can help alert security executives to breaches in protocol – such as workers e-mailing unencrypted Social Security numbers. The applications could either block, encrypt or quarantine such information, says Scott Laliberte, global product lead for the security assessment practice at Protiviti.

4. Transparent encryption. Some hard-drive manufacturers are adding this feature so that data stored on hard drives is automatically encrypted, Laliberte says. Meanwhile, companies are using software that automatically encrypts information on laptops and in e-mails so that users don't have to take any extra steps to do so.

5. Voice-over-IP technology. This, combined with the growing reach of broadband, is allowing companies to develop more comprehensive business continuity plans that will allow employees to work from home during a crisis, says Darryl Lemecha, CIO and senior vice president of shared services at ChoicePoint.

– MARY K. PRATT

VITAL SIGNS

Security-related technologies led the pack among the most critical for our IT executive respondents.

CRITICAL CARE

Survey respondents ranked the top five critical technologies for their companies today:

1	Antivirus protection
2	Data security/privacy
3	Servers
4	Disaster recovery/ continuity planning
5	Networking equipment

SOURCE: COMPUTERWORLD'S VITAL SIGNS SURVEY, FIRST-QUARTER 2007. 252 RESPONDENTS

Tight budget? Hit the ground running in 2007 with these fast-payback, high-impact projects.

STACY COLLETT

SPURRED BY stretched-out budgets, IT managers want to get the most business bang for their IT buck. That means delivering bottom-line impact and business value as quickly as possible.

"Speed is competitive advantage" in 2007, says Rich Penkoski, a partner at Deloitte Consulting LLP in Atlanta. "It's very easy to lose organizational interest in programs that take extended periods of time. The market doesn't stand still. Competitors don't stand still."

The 252 respondents to *Computerworld*'s quarterly Vital Signs trends survey said data management, antivirus protection, e-mail/groupware, voice-over-IP (VoIP) and storage-area network projects yield the fastest payback. The technologies that respondents said produce the most visible payback were ERP, e-mail, Web services, data management, business intelligence, and wireless and mobile systems.

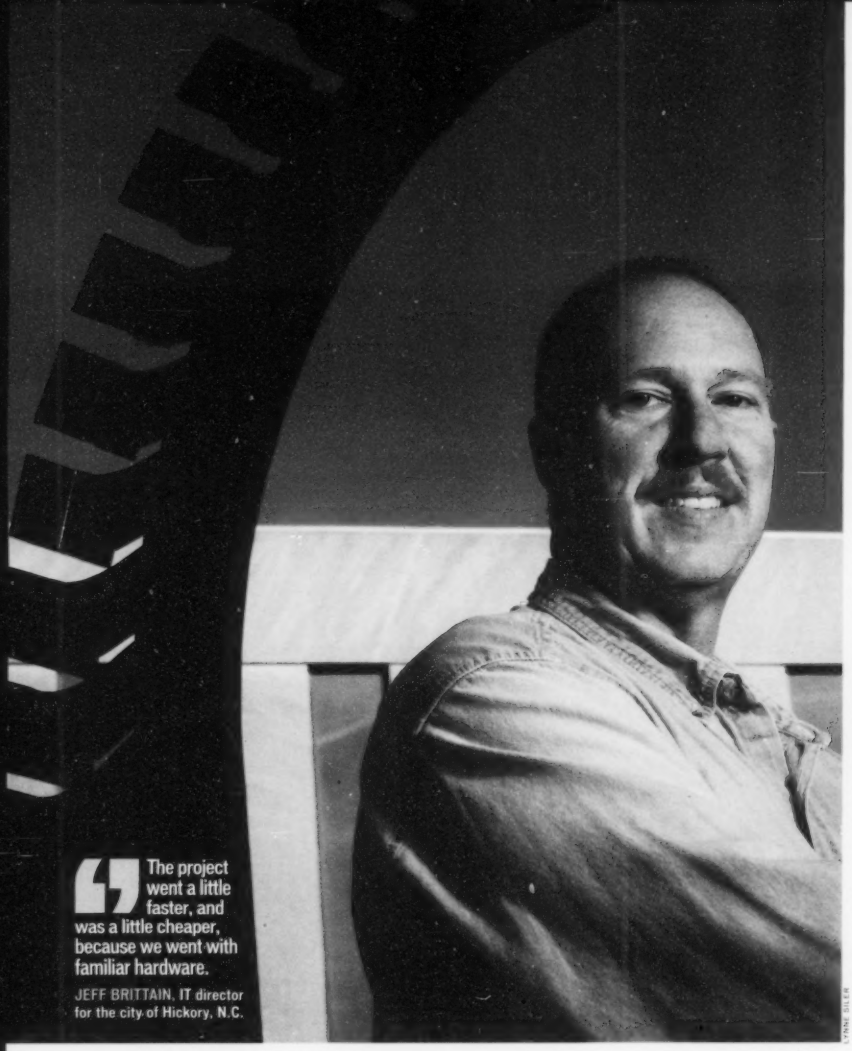
Many CIOs have seen these quick-fire results firsthand. They offer the following advice for getting big-bang projects queued up and done right and describe how they measured success.

FAST PAYBACK: VOIP PROJECTS

The Hickory, N.C., municipal government was tired of its old phone service. IT Director Jeff Brittain wanted to bring 21st century technology to city hall, which serves a community of 40,000 residents. He also wanted a system that was more manageable and offered better features for users. Knowing that there is steep competition in the telecommunications market, Brittain expected to get a good deal.

At the time, the city paid a monthly fee for phone service using its vendor's equipment. "We didn't own anything. We had to call them to make a

Continued on page 24



"The project went a little faster, and was a little cheaper, because we went with familiar hardware."

JEFF BRITTAIN, IT director for the city of Hickory, N.C.

BIG-BANG Projects

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The Voice of IT Management

3 Questions For Leonard Kleinrock

Leonard Kleinrock is emeritus professor of computer science at the University of California, Los Angeles. He created the basic principles of packet switching – the foundation of the Internet – while a graduate student at MIT, where he earned a Ph.D. in 1963. The Los Angeles Times in 1999 called him one of the "50 people who most influenced business this century." He spoke recently with Computerworld's Gary Anthes.

Which IT story took you by surprise in 2006, and why? By far the largest surprise was the $1.65 billion acquisition of YouTube by Google. Perhaps it should not have been all that surprising, since most every time we have enabled the masses to communicate and express themselves without constraints, we have seen a huge groundswell of participation and creativity, which typically leads to commercial success of the activity.

What will be the biggest IT story of the new year? I expect to see huge growth in phone-screen applications. We will continue to see surprising growth in the multibillion-dollar apps, including video and image downloads, sports, gaming and gambling. In addition, the surprise I forecast will be the emergence of powerful location-aware applications for the nomad and his or her mobile device.

What one piece of advice would you offer the IT manager going into 2007? Enable your users with broadband mobile access and applications, but don't bet on only one broadband technology such as 4G or WiMax. There are a number that will be offered, and it will be dangerous to bet on the winner in that group.

Continued from page 22

change. They had full control of everything, and we were just a customer," Brittain explains.

By capitalizing on the city's existing infrastructure and vendor relationships, Brittain was able to implement a VoIP system in about six months, and he expects to recoup the city's $165,000 investment in three years.

First, the city divided the request-for-proposals process into hardware and service bids. Brittain first invited a dozen hardware vendors to a group meeting where all prospective bidders could ask questions and hear the same answers. "That way, it was fair across the board," he says.

Once the RFPs were collected, the city looked at upfront costs, maintenance costs, knowledge transfer, training needs and infrastructure. Several years earlier, the city had recabled its old administrative building using Category 6 unshielded twisted-pair cabling. "It would support whatever we decided to do," Brittain says.

Brittain ultimately awarded the hardware contract to the vendor that had installed that cabling and other infrastructure, even though it hadn't submitted the lowest bid.

"The project went a little faster, and was a little cheaper, because we went with familiar hardware. The learning curve is also shorter," Brittain says. The project also moved quickly thanks to a requirement in the RFP for vendor engineers to help with installation and knowledge transfer as part of the package, he adds.

The city then bid out the service portion of the project and decided to stay with its existing phone company. "It was easier not to change. But [the company] significantly lowered our cost because they knew it was a competitive bid," Brittain explains.

THE PAYBACK: The combination of a new phone system and ownership of the hardware saves Hickory up to $52,000 a year. When VoIP expands to the city's two libraries this spring, Brittain estimates it will save the municipality another $7,000 to $8,000 annually.

BRITTAIN'S ADVICE: If you're looking for a fast-payback project, you should rely heavily on existing partners who know your infrastructure and needs. "If it weren't for our [existing] partnership, I'm not sure we would've made that transition easily," Brittain says.

HIGH VISIBILITY: ERP PROJECTS

In the spring of 2006, the first phase of a massive financial systems transformation took place at Nationwide Insurance Co. in Columbus, Ohio. The new system consolidates more than a dozen general-ledger systems down to a single platform. The project took 24 months from vision through deployment — a fast turnaround, considering the mammoth size of the insurer, which has $157 billion in statutory assets.

One of the keys to its success, says Deloitte Consulting's Penkoski, who worked on the project, was defining a unified vision at an executive level. "They started in 2004 with defining the vision for finance and the road map — what moves in what sequence to provide technology and platforms for the entire organization," he explains.

After developing its vision of the finance function, Nationwide implemented a single general-ledger, accounting and allocation system; added a Teradata-based data warehouse to integrate information from more than 200 source systems; and deployed an application to improve data visibility.

THE PAYBACK: The project's success has been measured using a balanced scorecard, looking at the progress that company executives have made against each element of their vision, Penkoski says. "In finance projects, tangible benefits are going to be accrued by other parts of the organization," he says.

"It was a tremendous launchpad . . . to prove that they can make substantial change in a rapid amount of time," he adds. "[Company executives are] now much more aggressive about time frames because they know they have the ability to do it."

PENKOSKI'S ADVICE: Projects will move quickly only if a senior executive drives them. "Only they can do whatever is necessary to remove the normal organizational roadblocks . . . or implement a major change in a rapid amount of time," Penkoski says.

What's more, the organization has to understand the vision that the program is trying to support. "If it's high ROI or a big impact on the organization, you're usually trying to do something more transformational," Penkoski says. "You have to share a vision of how the individual functions are going to look when it's done." And, of course, be willing to make a substantial technology investment, he adds.

FAST PAYBACK: DATA WAREHOUSE PROJECTS

CIO Jon Elsasser doesn't like quick IT projects, period. But as The Timken Co. quickly grew into a global manufacturer of engineered bearings and alloy steels with 2005 sales of $5.2 billion, the business needed a fast fix.

The company is in the process of implementing SAP globally to handle orders and production operations in 27 countries. But in 2004, "we were in a production capacity crunch, and we really needed information about our global orders and capacity, but we didn't have a global system yet," says Elsasser, who is also senior vice president at the Canton, Ohio-based company. So Timken quickly assembled a makeshift data warehouse system to capture order information from more than a dozen transactional systems around the world.

Elsasser admits it's a throwaway project, but the benefits outweigh the costs. The company has been able to run its plants more efficiently, provide better customer service and prevent a loss of sales.

First, Elsasser's team determined that there were four

VITAL SIGNS

When asked which projects get the biggest bang for the buck, respondents to our survey put data management and ERP at the top of their lists.

QUICK RETURN

Top five technologies that yield the fastest payback:

1	Data management/ business analytics
2	Antivirus protection
3	E-mail/groupware
4	Voice over IP
5	Storage-area networks

HIGH IMPACT

Top five technologies that yield the most visible payback:

1	ERP
2	E-mail/groupware
3	Web services
4	Data management/ business analytics
5	Wireless/mobile

SOURCE: COMPUTERWORLD'S VITAL SIGNS SURVEY, FIRST-QUARTER 2007; 252 RESPONDENTS

3 Questions For Vinton Cerf

Vinton G. Cerf is vice president and chief Internet evangelist at Google Inc. He is a co-designer of the TCP/IP protocols and the architecture of the Internet. In December 1997, President Clinton presented the National Medal of Technology to Cerf and colleague Robert E. Kahn for their pioneering work on the Internet. Cerf spoke recently with Computerworld's Gary Anthes.

Which IT story took you by surprise in 2006, and why? Several, really – the dramatic increase in interest in YouTube, the remarkable attraction of the Internet users to social networks like MySpace and multiplayer games like World of Warcraft.

What will be the biggest IT story of the new year? The massive influx of Internet-enabled mobile [devices] will dramatically increase the number of Internet users and also challenge Internet application service providers to adapt to the characteristics of these small devices.

What one piece of advice would you offer the IT manager going into 2007? Get smart about security, integrity and authenticity tools. Work hard to protect exposed systems to attack from outside the corporate firewall and from within by e-mail-borne viruses, worms and Trojan horses.

major production markets they needed information from quickly — automotive, industrial, aerospace and replacement markets in the U.S. and Europe. Together, they represent 80% of the company's manufacturing.

The team then deployed data warehousing software it had purchased years earlier. "I wasn't initially highly in favor of it because it was not a very elegant solution," Elsasser recalls. "It was clearly something that was going to get in the way of moving faster on the ERP project. But between the need to serve our customers and to run our operations efficiently, it was a pretty easy decision."

The order-transaction data warehouse project became a top priority for Timken's 10 data warehouse staffers. Elsasser says they were able to get the system up and running in about four months.

More than a dozen order-transaction systems in Europe and the U.S. feed orders from 18,000 customers into the data warehouse system. The makeshift system "allows us to know how many more orders we can take before we're out of capacity on a worldwide basis," Elsasser says.

THE PAYBACK: Elsasser expects to use the temporary data warehouse until the global SAP system with data warehouse functions is completed in 2008. Much of the data collected in the old system will be transferred into SAP's Advanced Planning and Optimization tool, he says.

ELSASSER'S ADVICE: CIOs should be willing to change their priorities and take chances for those soft-dollar benefits. "If the return is big enough, you might do something that you wouldn't normally do," Elsasser says.

HIGH VISIBILITY: WIRELESS PROJECTS

Colleges competing for incoming freshmen know that a wired campus gives them competitive advantage. At Berry College in Mount Berry, Ga., CIO Tim Farnham wanted that edge, but the school's existing wireless system wasn't up to snuff.

So it replaced the old system with a leading-edge wireless system from a new vendor. The new setup has 100 access points in six main academic buildings, with public access and secured access running separately.

THE PAYBACK: Berry College registered both hard-dollar and intangible results. "We cut our costs in half by going with [the new vendor]. We were spending $350 per access point; now we're down to $175 to $200," Farnham says. The wireless network also means high visibility for recruiting. "I don't know how you put a price on that," he adds.

FARNHAM'S ADVICE: Don't be afraid to scrap an old system and start from scratch with the latest technology. It will likely save money in the long run.

For some corporations, wireless projects are part of business survival. In the highly competitive wireless phone service industry, new features for customers are vital. So when Sprint Nextel Corp. senior network engineer Keith Lisbon and his team were directed to get the company's picture mail service up and running, he knew it was going to be a high-visibility project.

Project success is usually measured by subscriber growth, Lisbon says. Sprint Nextel has more than 51 million subscribers. "You want to prove that the subscribers are taking on the new service and, of course, the accuracy of that service," Lisbon says. "There are a lot of operational measurements that will be put in an engineering report to show [executives]."

But getting the service implemented quickly required some quiet, upfront planning. Before the new service was announced, the team spent a year researching and evaluating vendors that could store customers' photo images. The vendor would eventually need to perform most of the implementation, as well as recommend servers and equipment and help determine redundancy requirements.

Sprint Nextel assembled an engineering team to coordinate equipment and find the floor space the project required. Once the vendor was chosen, the team took less than eight months to get equipment on the floor, tested and into production.

THE PAYBACK: "It's been a great move for us," Lisbon says, though he wouldn't disclose actual subscriber growth that resulted from the new feature.

LISBON'S ADVICE: Companies looking for a big-bang wireless project should first make sure there's a need for it. "You have a lot of marketing people out there saying, 'People want it.' Something that takes off in China may not take off in the U.S.," Lisbon says.

Also, determine the cost ratio. "Make sure you know how much it's going to cost to implement something like this, not just in equipment, but people's time and energy," he adds.

PREDICTION

"Ultra-low-cost PCs will reshape the economics of the industry. [MIT's] Nicholas Negroponte plans to distribute 10 million $100 computers to the world's poorest children by the end of 2007. Their design will be adapted for the more advanced countries and will reshape industry pricing.

BART PERKINS, MANAGING PARTNER, LEVERAGE PARTNERS INC.

Which Metric to Use?

Companies measure technology project successes in many ways, according to *Computerworld*'s quarterly Vital Signs survey (see chart below). So which measuring stick is best? It depends on the project and the organization, says Rich Penkoski, a partner at Deloitte Consulting.

"The proper way to measure return on a technology investment is directly related to the function being affected and the composition of the organization at the current time," he says.

If a technology project tackles a supply chain issue, for instance, traditional ROI is probably going to be at the top of the list.

If an organization has grown through an acquisition, the returns associated with systems consolidation and the reduction in support costs are often a top priority.

"More mature companies may place a higher value on a balanced scorecard, and organizations undergoing substantial change internally or in the marketplace may look at ROI or internal [rate of return] with a much more focused lens," Penkoski adds.

– STACY COLLETT

VITAL SIGNS **Some respondents reported that they use a variety of metrics, depending on the project. The top pick, however, was return on investment.**

MEASURING STICKS

The top five metrics for showing the value of technology projects:

1	Return on investment
2	Payback period
3	Economic value added
4	Internal rate of return
5	Balanced scorecard

SOURCE: COMPUTERWORLD'S VITAL SIGNS SURVEY, FIRST-QUARTER 2007; 282 RESPONDENTS

Collett is a Computerworld contributing writer. Contact her at stcollett@aol.com.

SOUND-OFF: Vista

Microsoft will ship boatloads of its new OS, but our columnists agree on little else.

Big Headache

MARK HALL

FRANK, I SURRENDER. You don't have to write another word. You're absolutely correct. Microsoft's Vista operating system will have the biggest effect of the two major new desktop operating systems headed toward IT departments in 2007. Even if it wanted to, Apple couldn't make such a claim about Mac OS X Version 5, a.k.a. Leopard, which is due next month. The impact Vista has on IT will be far greater than anything Apple could conjure up this year. But that's not necessarily a good thing.

I'm afraid that 2007 could become known as the Year of the Great Vista Fiasco (GVF), resulting in the breakout of OS X in the minds of IT. A small but significant part of the GVF will emanate from end users. The GVF will be most felt inside IT shops. And it will begin even before the operating system rollout officially gets under way in most organizations.

That's because this time, Microsoft has changed the rollout rules, and none favors IT. First, there's the way in which Microsoft is seeding the market with free copies of Vista. It's something

Big Opportunity

FRANK HAYES

WHY DO I SUDDENLY FEEL like that unhip guy in the Macintosh commercials?

At least we agree on one thing, Mark: Microsoft will ship a lot more Vista to IT departments than Apple will send of Mac OS X Leopard. No doubt about that. And no doubt why: Apple doesn't sell to corporate IT. That's not even Microsoft's fault. Back in 1985, Apple launched "the Macintosh Office" (the LaserWriter printer and AppleTalk network) with a TV commercial showing corporate users as lemmings marching off a cliff. The Mac's corporate fortunes never recovered. "Long-held prejudices" indeed.

Yes, Vista will have the volume. But exactly what effect it will have will depend on IT people. Vista could be just another upgrade. Or it could be the last operating system we'll ever need to worry about.

Look, we all know why upgrades are miserable. Upgrades break things. Operating system upgrades break lots of things. They break client/server applications, because the clients won't

PHOTOS BY ROBBIE McCLARAN

MARK HALL

you've written about yourself, Frank (see "Get Ready for RC1," Sept. 18, 2006). By putting more than 2 million copies of Vista into the hands of anyone with enough money to buy a consumer PC magazine but maybe not enough brains to try to upgrade his PC on personal time rather than company time, Microsoft isn't exactly doing IT a favor. As you said, "We don't know what it will break or what risks it will create. And we don't have control over how it will hit us — or time to clean up a mess."

Second, and maybe more important, unlike XP and other Windows releases, the beta of Vista has taken much longer and involved many more people, most of whom, it seems, have posted highly critical commentaries online about the features, stability, security and nearly every other aspect of Vista. Interested end users have been deluged with negative litanies about Vista. These are scary to read and will become valuable ammunition for opponents of a Vista upgrade. It's one thing for IT to face criticism from end users for changing the look and feel of their desktops after an operating system refresh. It's another when the users can cite chapter and verse about widely discussed flaws.

Let's take just one: networking. Symantec claims that changes to the networking stack could make Vista less stable and secure than (if you can believe it) XP. The security company has been finding flaws in Vista as fast as Microsoft can release builds to test. And its researchers have determined that Vista's out-of-the-box support for peer-to-peer protocols and IPv6 will "play an increasing role in the delivery of malicious payloads."

> The impact Vista has on IT will be far greater than anything Apple could conjure up this year. But that's not necessarily a good thing.

Microsoft deserves credit for shipping an operating system with an IPv6 network stack ready to go, but making it the default will be a headache for IT. Why? Because a huge chunk of the network security monitoring equipment that IT departments have installed can't inspect IPv6 packets, and that makes them a potential security hole big enough to drive lawsuits through in our era of compliance.

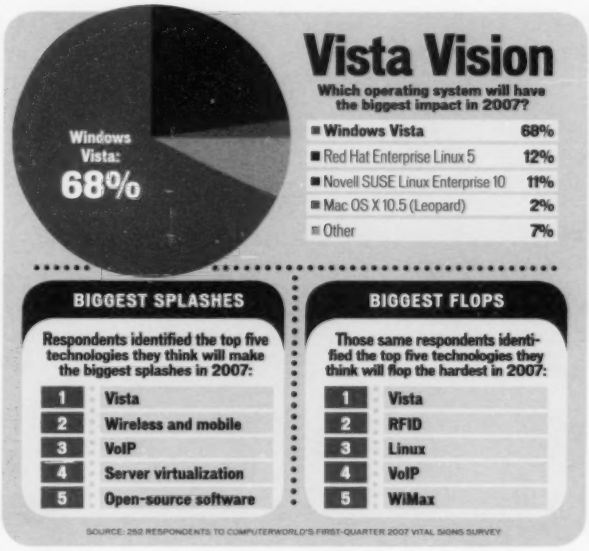
MAC OS X: IT'S IT-FRIENDLY

In contrast, Apple has been changing the Mac OS to be more, not less, IT-friendly. For one thing, it's now Unix, a technology that IT shops are very familiar with and trust. For another, OS X now runs on Intel processors. Macintoshes, while still better designed than most PCs, are no longer idiosyncratic boxes that are troublesome to manage.

Equally important are the new features in Leopard that are designed to help IT manage end-user needs. Most dramatic, of course, is the Time Machine tool. It comes standard in OS X Version 5. If Windows users lose an old file or want to return to a prior version of a document, their first recourse is to call the IT help desk. After lost passwords, lost files are the next most common help desk request. With Time Machine, Mac users get a visual excursion through a time line of their files. When they locate the old file, they can simply click on it to restore it for immediate use.

Then there's Boot Camp, the Leopard tool that lets Mac users run Windows or Mac apps natively on a single machine. So even IT shops with a Windows-heavy app portfolio can upgrade their end users to Macs and still deliver Windows software to them.

I'm guessing long-held prejudices against the Mac will prevail this year, which is why you're right, Frank. The Great Vista Fiasco of 2007 will have a greater impact than Leopard. And that's a shame.


Vista Vision
Which operating system will have the biggest impact in 2007?
Windows Vista: 68%
Windows Vista 68%
Red Hat Enterprise Linux 5 12%
Novell SUSE Linux Enterprise 10 11%
Mac OS X 10.5 (Leopard) 2%
Other 7%
BIGGEST SPLASHES
Respondents identified the top five technologies they think will make the biggest splashes in 2007:
1 Vista
2 Wireless and mobile
3 VoIP
4 Server virtualization
5 Open-source software
BIGGEST FLOPS
Those same respondents identified the top five technologies they think will flop the hardest in 2007:
1 Vista
2 RFID
3 Linux
4 VoIP
5 WiMax
SOURCE: 252 RESPONDENTS TO COMPUTERWORLD'S FIRST-QUARTER 2007 VITAL SIGNS SURVEY

FRANK HAYES

run. They break standard desktop-productivity apps. (Gee, did you wonder why Office 2007 arrives on the same day as Vista?) They break the spit-and-bailing-wire scripts we write to connect processes. Worst of all, they break users' productive habits.

So before Vista goes live, IT shops will pour time and money into finding out what it will break and what to do about that. Just like in the upgrade to Windows XP. Which was just like the upgrade to Windows 95.

That's Vista as just another upgrade. It may not be your Great Vista Fiasco; it won't have much impact — just lots of expense without much benefit.

Here's a different option: We can get off that upgrade treadmill. We can use the Vista upgrade as an excuse to start chopping out the operating system dependencies in our applications.

> Here's a different option: We can get off that upgrade treadmill. We can use the Vista upgrade as an excuse to start chopping out the operating system dependencies in our applications.

I know you think that's a good idea, Mark. You said so a year ago, when you argued that browser-based applications are the wave of the future and IT shops should replace as many desktop PCs as possible with thin clients (see "Wave of the Future," Jan. 2, 2006).

You were wrong about thin clients, which just don't give users the flexibility they need. But you had it half right.

Turning enterprise client/server applications into browser-based apps cuts to the heart of upgrade misery. With browser-based apps, user front ends don't have to be written for one operating system and its quirks. They can be written in AJAX or Java, and then even when the operating system changes, only the browser has to be upgraded.

At that point, an operating system upgrade starts to be about how we benefit, not what it breaks.

But we don't have to stop there. While we're standardizing on browser-based clients for our enterprise software, we can also decide on standard file formats for desktop productivity applications such as word processors and spreadsheets.

For example, suppose IT specifies that word processing documents are to be stored on network drive K: in Rich Text Format. That way, we insulate our documents against some vendor's decision to change file formats every time a new version of its office software comes out.

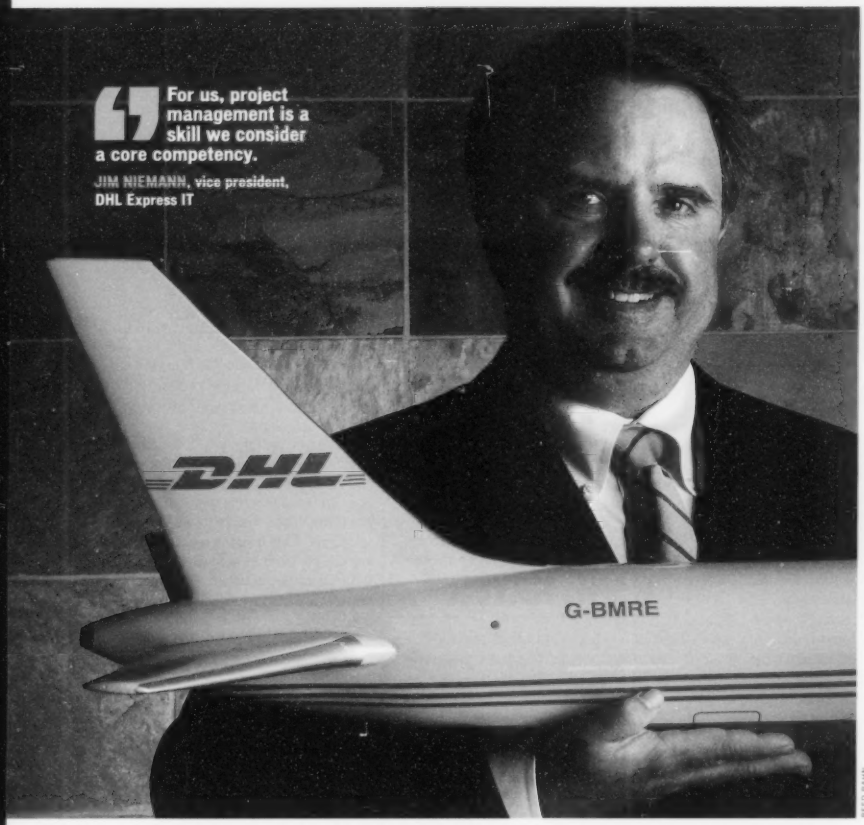
But we can get other advantages from that standard file format, too. We could scan everything going onto K: to make sure it's not corrupted or virus-infected; if it's not a valid rich-text file, it doesn't get stored. We could protect documents and keep the lawyers and regulators happy.

We could even automatically rename and keep backup copies of each document instead of deleting them — like a network-drive version of that "Time Machine" feature you love in Mac OS X Leopard. It's a good idea, and it's not something we have to wait around for Microsoft to implement in some future version of Windows.

Can IT do all this overnight? Nope. And browser-based apps and file format standards won't solve all upgrade issues. There's still training, broken user habits and those spit-and-bailing-wire scripts. Oh, there's always fiasco potential.

But if we make prying ourselves loose from things that lock us in the focus of this Vista upgrade, our next operating system upgrade might be a lot smoother. And less painful for us and for users. And a lot less expensive.

Vista might really be the last operating system that gives us much to worry about. Now that would be an upgrade with impact.



"For us, project management is a skill we consider a core competency."

JIM NIEMANN, vice president, DHL Express IT

REED RAIN

Skills

STANDOUT

With **fewer IT openings** expected this year, these **five premium skills** are job clinchers.

JENNIFER McADAMS

GOLF BALLS run amok and ping around a warehouse in an amusing new DHL commercial. A distraught warehouse manager phones the shipping giant to reroute correspondence and packages, while a booming voice pledges that DHL has adopted a renewed focus on customer service — a promise that will extend clear down to IT personnel manning help desks and scrambling to provide technical support.

IT hiring figures are expected to dip slightly in the coming year, so you'll be getting a flood of résumés for every job opening you have. From those, hiring executives will pluck people with the strongest combination of technical and business skills. For instance, knowing how to help a call center agent navigate malfunctioning pop-up screens will no longer be enough. Instead, DHL and other big companies want tech support staffs to prioritize and understand why jumping on a problem quickly is a mission-critical must.

Essentially, CIOs are looking for the "Renaissance" IT professional — for instance, the individual with sharp skills in the Cobit (Control Objectives for Information and Related Technology) framework for governing IT and evaluating internal system controls, and a good feel for internal business processes. Proof that a potential hire is well-rounded might include five in-demand skills recently identified in *Computerworld*'s latest quarterly Vital Signs survey of IT trends: programming acumen, project management experience, IT-business analysis know-how, security savvy and technical support skills.

"For us, 2007 will be a year of focusing on what is really important to our company as a whole and what will bring us the most value," says Jim Niemann, vice president of DHL Express IT in San Francisco. "In past years, we've tried to solve every problem in the book. Now we are working those projects that show true bottom-line value."

To address the most pressing and critical challenges in 2007, DHL and other major corporations are look-

ing for employees who can help establish priorities, roll up their sleeves and take action, Niemann says.

1. WELL-ROUNDED TECH CHOPS

While today's IT job seekers need to develop strong communication skills and shrewd business sense, they must still have stellar technical backgrounds.

"Large organizations have traditionally focused on specialists," says Tom Carpenter, president of Sysedco, an IT training, staffing and consulting company in Dayton, Ohio. "However, this seems to be trending toward what I call 'deep generalists.' These are individuals who have in-depth knowledge in two or three areas but complement this with broad knowledge in both technical and business areas."

Corporate leaders will also begin looking for programming, application development and other technical skills in the portfolios of those farther up the chain of command, adds Dan Twing, vice president of research and consulting at EMA Inc., a St. Paul, Minn.-based consulting firm that focuses on the technology and business management needs of utility, public works and manufacturing organizations.

Twing suggests that midlevel managers seek certification in the hottest technical areas, such as Cobit, ITIL (IT Infrastructure Library) best practices, CMMI (Capability Maturity Model Integration) processes and the Six Sigma quality assurance framework. "These certifications might only yield pay premiums of 10% to 15%, but the training will make the candidate stand out and be more competitive in a crowded marketplace," he says.

Likewise, for hands-on programmers and others constructing core enterprise systems, a firm grasp of the big picture is essential, notes Susan Merritt, dean of the Seidenberg School of Computer Science and Information Systems at Pace University in New York. "The ideal candidate has at least a baccalaureate degree in computer science or a related field. He or she must also know how to build and 'read' software as well as have a good overview of systems and services," she says.

2. PROJECT MANAGEMENT PROWESS

DHL boldly asks on national TV, "Whatever happened to customer service?" The answer, offers Niemann, lies partially in the current dearth of project ownership. "For us, project management is a skill we consider a core competency and one we demand of all of our senior IT people around the world," he says. "It used to be the case that we would hire a program manager and that would be it. Now we realize this is a skill set we all need to have."

Applicants looking to become agile project managers should cut their teeth in the real world, not in the classroom, advises Andrew Field, CEO of PrintingForLess.com in Livingston, Mont. "If I were to make a recommendation to an IT person trying to sharpen skills, it would not be to run out and get an MBA. It would be to lead a project team and get something like that on your résumé," he says. "Even if it is a small team, just prove not only that you can do things yourself, but also that you can get others to do things for you."

Self-starters will likely take the lead in the enterprise quest to blanket an IT shop with project management know-how, adds Brendan Courtney, senior vice president and group executive of IT recruiting firm Spherion Professional Services in Fort Lauderdale, Fla. "Volunteer for a project; get involved in business networking groups; perform work beyond the job you were hired to do," he suggests.

3. CRITICAL THINKING

With data warehouses bursting at the seams, enterprise IT shops are crying out for business analysts and others able to link IT efforts with corporate missions. "There is so much data available everywhere

3 Questions For Robert Metcalfe

Robert Metcalfe is a general partner at Polaris Venture Partners, a venture capital company with offices in Waltham, Mass., and Seattle. Metcalfe co-invented Ethernet and founded 3Com Corp. in 1979. The following year, Metcalfe received the Association for Computing Machinery Grace Murray Hopper Award for his work in developing local networks. Metcalfe, who has also served as a publisher and columnist for InfoWorld magazine, was also awarded the IEEE Medal of Honor in 1996 and was bestowed with the National Medal of Technology by President Bush in 2003. He is also the creator of Metcalfe's Law, which states that the value of a network grows proportionally to the increase in the square of the number of the system's users. Metcalfe spoke recently with Computerworld's Thomas Hoffman.

Which IT story took you by surprise in 2006, and why? The social networking bubble was a bit of a surprise. We're seeing a torrent of these flashy social network start-ups and the higher reaches of the Web. It has a lot of traction now.

What surprises are in store for IT users in 2007? From my point of view, there's little new in IT, particularly in enterprise software. Video might take *Computerworld* readers by surprise. There are three major forces – video, mobility and embedded – all three of which are nipping at the edge of IT. Video burdens IP networks, and they haven't quite seen the value proposition, but CIOs will eventually have to embrace it instead of fighting it. For mobility, the platform of choice is increasingly cell phones and less desktops. Cell phones are now a platform for enterprise applications. Embedded software, such as RFID, hasn't quite made it yet. To make enterprise applications more aware of inventory or the supply chain through RFID and sensor networks – of the three things, this is the furthest away from impacting CIOs.

What will be the biggest IT story of the new year? It's not going to be [Microsoft's] Vista. The more I hear about Vista, the more it sounds like it's not a departure. I hear a pleading for something more interesting than Vista. I would go back to video. We just had [Google's] big YouTube transaction. I take that as a harbinger, and the surprise will come from that direction. Just as the PC invaded the enterprise from the bottom, from the fringes two decades ago.

VITAL SIGNS

Our survey reveals trends in hiring and staffing levels and identifies the top skills IT executives are seeking.

HOT SKILLS

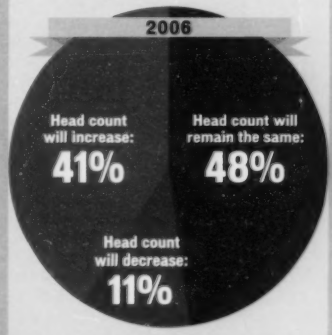
Top skills IT executives say they will hire for in 2007:

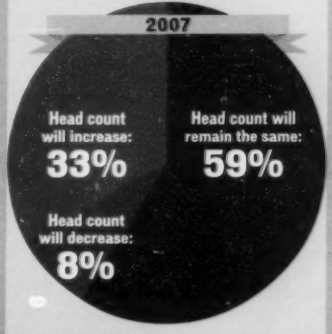
1	Programming/application development
2	Project management
3	IT-business analysis
4	Security
5	Help desk/technical support

SOURCE: COMPUTERWORLD'S VITAL SIGNS SURVEY FIRST-QUARTER 2007. BASE: 252 IT MANAGERS

NEW HIRING STALLS

Compared with this time last year, fewer IT executives expect to increase their overall staffing levels.





SOURCE: COMPUTERWORLD'S VITAL SIGNS SURVEY FIRST-QUARTER 2006. 338 RESPONDENTS. AND VITAL SIGNS SURVEY FIRST-QUARTER 2007. BASE: 252 IT MANAGERS

that we need business intelligence analysts. There will also be a greater need for high-level business relationship managers," observes Eric Fowler, a senior corporate recruiter on the human resources/talent acquisition team at Columbus, Ga.-based Aflac Inc., a Fortune 500 health insurance company.

"Critical thinking is also very important to us," says Niemann. "We are looking for people who can execute what you ask them to execute. We want them to have an opinion, speak up when they may not be going in the right direction, tell us to take a left here instead of a right to get there faster. Rote workers are not what we are looking for."

4. SECURITY SHARPNESS

High-profile security breaches and the specter of security audits that stem from daunting new regulations have hiring officials scouting for talent with sound security credentials and experience, says Carly Drum, managing director of Drum Associates Inc., a New York-based executive recruiting firm.

"Since the Sarbanes-Oxley Act of 2002 passed its fourth anniversary in July," Drum says," the need for security, risk management and compliance specialists has put executive-level information security officers in even greater demand. These positions can't be offshored and require an underpinning in security as well as good analytical and program management skills."

The stepped-up hunt for job applicants with security experience is tied to the ways corporations now house and share information, says Larry Bruce, vice president of Woburn, Mass.-based IT staffing firm Sapphire Technologies LLC. "Security jobs are in very high demand right now, and we expect this trend to continue. As businesses increasingly rely on Web-based information sharing, security replacements are remaining high on corporate priority lists," he says.

Bruce notes that savvy security staffs must also keep up with new means of stealing sensitive corporate data. "The proliferation in the use of iPods, PDAs and smart phones has forced businesses to safeguard their networks from internal threats as well," he says.

Having credentials blessed by the federal government is a surefire way to prove security prowess to potential employers. "Someone who has an active government security clearance along with other core skills is going to have an easy time finding employment," says Scot Melland, CEO of Dice Inc., a company in Urbandale, Iowa, that runs specialized career sites and career fairs for high-growth vertical sectors.

Although keeping employees at all levels tuned in to new risks is important, overall security responsibility should rest with an organization's top IT executives, advises DHL's Niemann. "Security is obviously a growing need for all companies. There is also the realization that security is of such importance that people in high-profile, director-level positions should be monitoring risks to an organization," he says.

5. HELP DESK SUPPORT

Although hiring figures might dip slightly, companies are always looking to fill hands-on support positions. "Help desk/technical support positions notoriously have high attrition rates. These are usually entry-level positions and as such have a pretty steady need for replacements as workers advance," notes Wendy Kemp, Sapphire's regional manager for Florida and Atlanta.

However, some officials will consider filling these jobs in unconventional ways, adds William Howe, Sapphire's regional manager for Texas. "Many companies are choosing to offshore jobs involving trainable, repetitive duties like programming and first-level support, so demand for these skills has lessened to some degree in recent years," he says.

For some companies, help desk and support staffers represent front-line contact with customers and are now regarded as a crucial in-house resource. Explains DHL's Niemann, "We've got people calling all of the time, and many of our systems have Web exposure to our customers. Literally, we have a help desk in every region we serve, and we are looking for individuals with strong customer-service skills."

Niemann again points to his company's ad campaign. "If we are advertising the fact that we are bringing customer service back to the shipping business, that effort might often begin with the help desk," he says.

Whether looking to step up the emphasis on project management, bring in top officials with strong security skills or staff a formidable help desk, hiring managers will be more selective in the coming year, predicts Scott Dare, IT director of Eisner & Lubin LLC, a New York-based accounting and consulting firm.

"In a word: cautious," says Dare of the mind-set hiring officials will adopt in 2007. "While we no longer have the glut of tech labor seen after the burst of the 2003 Internet bubble, there are still more technically qualified job seekers than there are jobs."

Given the spate of options, employers may want to insist on well-rounded hiring officials as well as applicants. "IT hiring managers must focus on nontechnical skills to find the best candidate — qualities like interpersonal skills, impressions of trust, reliability and so on," says Dare. "This is difficult for even seasoned hiring managers, but now it's important for any IT interviewer." ▸

McAdams is a freelance writer in Vienna, Va. Contact her at JMTechWriter@aol.com.

PREDICTION

Build it right: Structure the workplace to maximize the potential of the youth authorities. Net-geners function better in a decentralized, independent, collaborative and innovative work environment. However, this doesn't mean they don't need or want to be managed. Instead, they seek work experiences that value their contributions, provide clear expectations and feedback, and above all provide them with supervisors who mentor and guide them.

DON TAPSCOTT, FOUNDER AND CEO, AND **MIKE DOVER**, VICE PRESIDENT OF SYNDICATED RESEARCH, NEW PARADIGM

How to Land the Job

Job applicants scouring the market for sought-after IT posts might want to heed these four tips offered by a handful of employment experts:

1. DO YOUR HOMEWORK. "Candidates must take the initiative to understand what the company is trying to achieve from an overall business standpoint – for example, better products, an expanding product line, efficiencies, market domination," suggests David Keirsted, senior director of IT resources at Kelly Services Inc., a Troy, Mich.-based staffing service firm.

2. GO TO SCHOOL. "Clearly, getting a degree from a well-known school is important and valued. I believe that degrees are worth at least a 20% premium," says Jon Piot, a president at Technisource, a St. Louis-based IT and engineering services provider.

3. CHOOSE THE RIGHT PATH. "Opportunities now include e-commerce/MBA hybrids or even programs offered online," says Jim Leone, a professor and chairman of the IT department at Rochester Institute of Technology. "What I do not recommend is the quick fix that certifications give. Most of them will help a person get hired, but without serious and continual studying or personal retraining, a person will become marginalized quickly."

4. GET THE RIGHT DEGREE. Consider master's-level work in software development and management, knowledge management systems, networking or systems integration, advises Leone.

How to Make the Right Hire

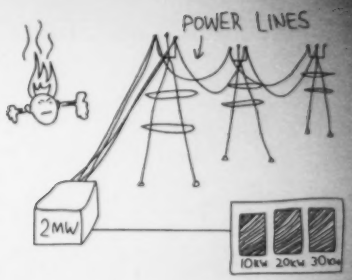
Staffing experts offer these four tips for managers scratching their heads over which candidates to bring on board.

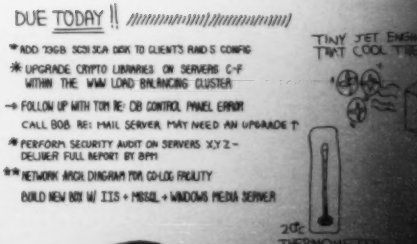
1. ASK A LOT OF QUESTIONS. "Can this person do what their résumé says they have done? Will they fit into the culture of our company and my department? Do they have the soft skills to work within our environment? If they are capable technically, are we going to be able to keep them happy, and for how long?" asks Brendan Courtney, senior vice president and group executive at Spherion Professional Services.

2. THINK ABOUT THE LONG HAUL. "During the interview process, we are seeing more of a shift toward hiring for the future," says Bill Haiges, manager of recruitment, training and development at IT consultancy Dimension Data North America Inc. in Hauppauge, N.Y. "Ask applicants what their long-term goals are. Figure out whether there are opportunities now or opportunities that might exist down the road to match those goals. It doesn't make sense to hire someone if you can't keep them long term."

3. SCOUT OUT TEAM PLAYERS. "Look for experience in software development in a team environment, hopefully as a team leader, ideally as a project manager," suggests Jim Leone, a professor and chairman of the IT department at Rochester Institute of Technology.

4. TAKE A LOOK AROUND. "The most cost-effective strategy for hiring managers is to draw on [your] own pool of talent," notes Erik Dorr, senior research adviser at The Hackett Group, a strategic advisory firm in Atlanta. "Development of internal career paths and training curricula is critical. Being well-positioned inside the organization is important."

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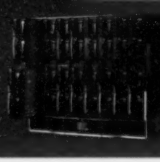

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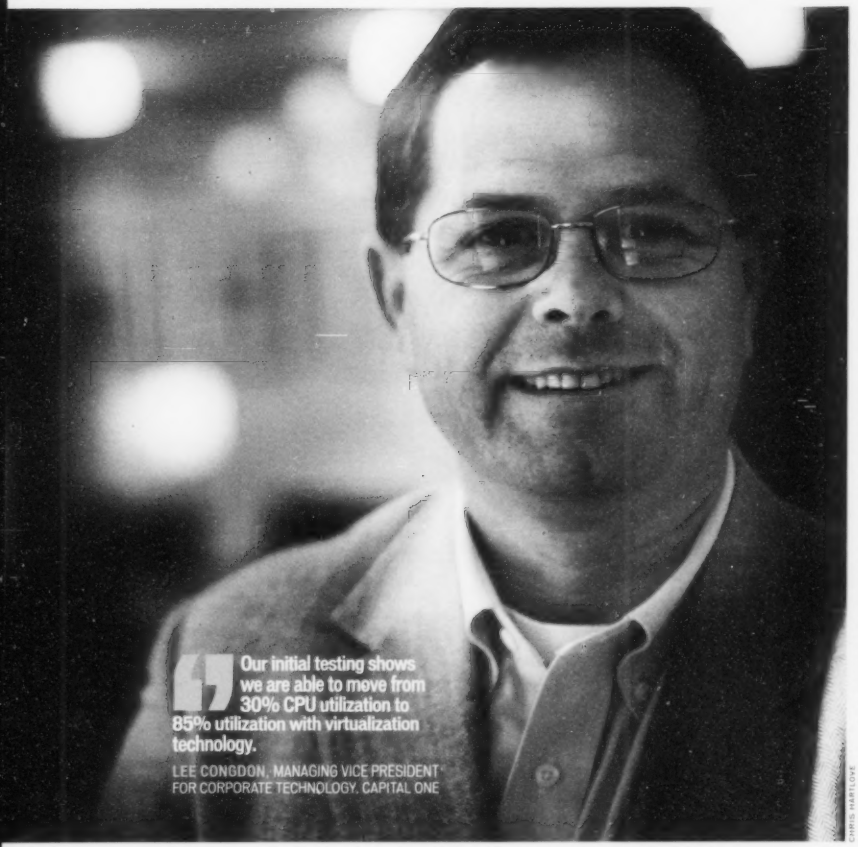
Our initial testing shows we are able to move from 30% CPU utilization to 85% utilization with virtualization technology.
LEE CONGDON, MANAGING VICE PRESIDENT FOR CORPORATE TECHNOLOGY, CAPITAL ONE
CHRIS HARTLOVE

TIRE-KICKING Tech

Our survey identified the **top technologies** queued up for **testing** this year. Here's how five companies are already **reaping the benefits.**

DREW ROBB

THE TECHNOLOGIES being assessed now at companies both large and small could well turn out to be the ones to watch in 2007, with early adopters hard at work blazing the trail for others to follow. According to *Computerworld*'s Vital Signs survey of 252 IT executives, server virtualization topped the list of technologies being tested, followed by document management, content security, asset management and business process management. Here's a look inside five companies that have taken these technologies for a test-drive — and are getting early payback.

1. SERVER VIRTUALIZATION

Capital One Financial Corp. is midway through a three-year project to transition from 18 operating systems to five strategic platforms. Server virtualization is a central part of that strategy and will enable the company to drop from 1,600 servers to 1,100.

"Our initial testing shows we are able to move from 30% CPU utilization to 85% utilization with virtualization technology," says Lee Congdon, Capital One's managing vice president for corporate technology. "In addition to lowering costs, we also found that as we consolidate on a [smaller] number of larger, more capable servers, we get better response times on an individual application, even though it is operating with other applications."

Virtualization and standardization have also reduced the time needed to provision a server from six to eight weeks down to two weeks. This has particularly helped with the implementation of agile software development, since the developers aren't

delayed by not having a server available when they need it, says Congdon.

The company is using different types of virtualization depending on the platform. It uses VMware for Windows and Linux on Intel servers. Its AIX and HP-UX Unix servers and IBM zSeries mainframes all use proprietary vendor software for creating logical partitions. Congdon says VMware has worked well so far, but Capital One might consider software from other vendors in the future.

The virtualization project is scheduled for completion by 2008. In the meantime, he says, the IT department will move toward offering differentiated service levels to different business applications. Since virtualization makes it easy to shift resources, capacity will be reassigned to address peaks in demand, taking resources away from lower-priority services when they're needed by higher-priority ones.

WORDS OF WISDOM: When virtualizing a data center, Congdon says, it's essential to have a transparent and agreed-upon chargeback model so no department feels it's paying for the services provided to another. He also advises piloting it in several areas before launching a full-blown transition.

"That way, you get some learning upfront before you commit to that project plan," he says. "You need to understand how it is going to apply in your own environment, since each organization is different."

2. DOCUMENT MANAGEMENT

Jan Berend Wolters founded his publishing firm in 1836, nine years after Beethoven's death. Amsterdam-based **Wolters Kluwer NV** is now a $4 billion international publishing giant with 18,400 employees. Its Conshohocken, Pa.-based Wolters Kluwer Health (WKH) division printed its first textbook in 1879 and now publishes more than 33,000 articles annually in 200 medical journals and publications. But just as music has changed since Beethoven's day, so has publishing.

"We were very heavily in the paper world — everything came in on paper, everything went out on paper," says Patti Ward, director of product management in the publishing solutions group at WKH. "Around 2000, we saw a huge surge in the amount of content we received electronically and a huge surge in the number of customers requesting an online presence."

Initially, the company scrambled to establish ad hoc processes to deal with all the different electronic formats, but that approach soon fell apart.

"By 2003, we had gotten ourselves into a firestorm," Ward says. "We needed a strategy that would let us move forward with the same level of stability we had before the Internet revolution."

The company looked at several commercial vendors and also considered developing a system in-house before settling on an enterprise content management (ECM) system from Documentum, which is now part of EMC Corp. A key factor in the decision was the size of Documentum's research and development budget.

After a year of work by WKH's development staff and systems integrator Flatiron Solutions Inc., the initial version of the ECM system went online in March 2005 with 100 magazine titles. After nine months, WKH had achieved a six-figure return because the system had cut the costs of printing and delivering paper materials.

By the end of 2006, all of WKH's publications were in the system. Now, the company can accept content — both text and graphics — in a variety of formats, manage the workflow of the articles as they are reviewed, edited and published, and output the content in the format that customers need.

"Some journals go out to as many as 35 different aggregators," says Ward. "The system picks the right content and ships it out to the right aggregator at the right moment."

The ECM system's Microsoft SQL Server database now contains about 1.9 million documents, and that number will grow this year as WKH's books and databases are added.

It is also being used for internal processes. "We are using it for contract management, which is a huge area for us," says Ward. "We are looking at extending it to marketing and business development materials in 2007."

WORDS OF WISDOM: Ward cites two key elements that have contributed to the project's continuing success. First is the evaluation and restructuring of the workflow processes so the right actions could be systematized. The other is having good communication with the end users.

"The No. 1 thing that made us successful was strong communication with the users and letting them take ownership of the process," she says. "By the time we launched, they were an army of owners."

VITAL SIGNS

Server virtualization projects will take hold in 2007, with document management and security tests also on tap.

TOP TESTERS

The top five technologies being tested:

1	Server virtualization
2	Document management
3	Content/security control
4	Asset management
5	Business process management

SOURCE: COMPUTERWORLD'S VITAL SIGNS SURVEY, FIRST QUARTER 2007. 252 RESPONDENTS.

3 Questions For Warren Bennis

Warren Bennis is an authority on organizational development, leadership and change. He has written more than 20 books on these topics and is now a university professor and distinguished professor of business administration at the University of Southern California. He is also chairman of the board of directors at the Harvard University Kennedy School of Government's Center for Public Leadership. He has been an adviser to four U.S. presidents, including John F. Kennedy and Ronald Reagan. He spoke recently with Computerworld's *Thomas Hoffman.*

Which IT story took you by surprise in 2006, and why? There were two things. The first one has got to do with this whole area of the wiki world, which I think has enormous implications for how businesses are run. I'm quite impressed with Don Tapscott's new book [*Wikinomics: How Mass Collaboration Changes Everything*, co-authored with Anthony D. Williams]. We've heard [former General Electric Chairman] Jack Welch talk years ago about "boundarylessness." It expands upon this. What it means is that as the world has become globalized, we have to think about all institutions as boundaryless.

Now, the possibility of people outside the organization providing business intelligence and all sorts of information is filled with potential over the next 10 to 15 years. It's also filled with problems but certainly worth watching.

I'm in the midst of writing something I've been thinking about for two years. There's a connection between the computer world and the social context of that. The title of the essay on my mind is called "Cells, Dogs and Strollers." It has to do with the demographics we've seen since 9/11. We're seeing far more marriages and births, sales of strollers have mounted exponentially since then, and sales of cell phones have expanded dramatically for older and younger people. And there are more dogs every day in each city.

In this world, cells are not just a way of talking to your friends and family but a way of keeping us connected. At a global level, it's tribalism, and somehow technology is a way for organizational leaders to help keep people connected at a time of extraordinary anxiety and fear. What organizational leaders really need to keep in mind is that the workplace is one of the few places where people can huddle and feel safe and secure. We're increasing the capacity for people to huddle through the aid of technology.

What surprises are in store for IT users in 2007? One thing that's going to be even more necessary than in the past is an increased need for interdependence. Someone should count the number of new "C" words that are being introduced – we have a chief wisdom officer, a chief security officer, a chief of organizational intelligence. The idea is that one person, no matter how larger than life and Rushmorian that figure is, can't do it alone. The era of the single leader is over. If it's a surprise, it shouldn't be.

What will be the biggest IT story of 2007? We've hit a tipping point on diversity. As I sit in my office in USC, I'm looking at pictures of our students. USC President Steven Sample and I have been teaching a course called Art and Adventure of Leadership for 12 years now. Eleven years ago, there may have been one or two African-American women and the rest of the class was mostly WASP-ish. Now, they're from all over the world.

What we're going to see more and more are leaders who are biracial and a real tipping point of diversity in our country. You can see it in Barack Obama, who in his first term as a senator is seriously being considered as a presidential candidate.

3. CONTENT SECURITY/CONTROL

Although very few companies operate without at least antivirus software and a firewall these days, companies around the country are testing an emerging set of products that lock down crucial information, including antispyware, encryption and Web site blocking tools, as well as e-mail scrutinizers.

There is no one-size-fits-all solution. A financial services firm, for example, needs to police outgoing e-mail content to make sure that stockbrokers don't release insider information. Hospitals are concerned about access to patient records. For **Able Body Labor**, a temporary help agency in Clearwater, Fla., the challenge was determining how to set up a security system that would be easily replicable in its rapidly expanding number of branch offices — now up to 130 in 15 states, with many more on the way.

The company had started implementing a virtual private network connecting all its offices in 2003 and wrapped up the project in early 2006. But securing that network was a problem, especially since the remote locations didn't have their own IT staffers. Each site had its own appliance to scan e-mail and control which sites employees could access.

"We were managing more than 120 firewalls manually," says CIO Paul Zimorski. "Making any changes meant logging onto each one individually, so adding a single domain to the whitelist would take a week."

Able Body took security a step further. The company now filters its e-mail content through a SonicWall Inc. PRO 4100 appliance located at headquarters. It has set up a series of message rules and blocks certain types of attachments. To lock down Web access at the remote offices, the company recently put together a shelf unit consisting of a SonicWall TZ 170 device with a wireless access point, power strip and extension cord. The system controls the Web sites users can access and the length of time they can visit them by assigning sites to groups in Active Directory. The whitelists of company-approved Web sites and actual access controls are handled by the SonicWall devices.

The company now has a number of preassembled and wired units that it can ship out to the branch offices, where employees can just plug them in without any special training. With these in place, modifying the whitelist, which used to take a week, can now be done in 20 minutes.

"Using these devices for content security will not only save us time by being able to centrally manage the devices, but also the time we spend fixing problems caused by every end user having a wide-open Internet connection," says Zimorski. "I am keeping about 10 on the shelf so that if one goes bad or we open a new office, we can just fire one out the door."

WORDS OF WISDOM: Considering a similar project in 2007? Zimorski offers this advice: "Stay consistent, get expert help instead of trying to do everything yourself, and make sure the system is easy to maintain."

4. ASSET MANAGEMENT

"It is important to get more from your assets by increasing capacity and improving reliability," says Houghton LeRoy, research director for asset management at ARC Advisory Group Inc. in Dedham, Mass. "If your assets are performing well, your business is going to do better."

This applies to IT hardware as well as other physical assets. For **Gwinnett County Public Schools** on the northeast edge of the Atlanta metropolitan area, the problem is keeping track of the buildings and equipment needed to educate its rapidly expanding student body. The district serves more than 152,000 students, up 7,000 from the year before, at 106 schools. Another 35 school complexes will be constructed in the next five years. Some 1,500 buses and 500 support vehicles travel 121,000 miles a day.

"We receive 400 work orders a day, not to mention about 1,000 preventive maintenance jobs we need to do every month," says maintenance engineering supervisor Carter Wood. "We can't tackle every job all at once."

The district is rolling out asset management software called Maximo from MRO Software Inc., which was recently acquired by IBM. It started with the building maintenance departments, then expanded the deployment to the custodial repair support and the grounds maintenance crews. To date, more than 24,000 items, ranging from buildings to floor buffers, have been counted and tagged. The inventory also shows the capacity of equipment such as generators and how old they are. And when a repair work order comes in, the system indicates whether the machine is under warranty.

PREDICTION

"Underground server centers will become increasingly important due to their high levels of security and climate-controlled environment. Minor outages are becoming unacceptable as dependence on the Web increases. Legislation, hackers, natural disasters and terrorists make security more difficult. Underground server centers offer unequaled protection from intrusion and natural disasters.

BART PERKINS, MANAGING PARTNER, LEVERAGE PARTNERS INC.

"We have greater certainty on our installed base than ever before," says Wood. "This lets us write a better preventive maintenance schedule, and we have made a lot of productivity gains."

Next up is expanding the asset management system to the transportation department and its nearly 2,000 vehicles. While the other three facilities departments run on a single instance of Maximo, transportation will be on a separate system. Then, over the next year, Wood says, the district plans to provide the maintenance crew with mobile devices, which will help them move to a paperless environment.

"Right now, the work orders are transmitted electronically from the customer, but then we print out the work order and handle it on paper," he says. But with the mobile devices, technicians will input data at the job site and sync up to the server at day's end.

Once those are in place, Wood says he plans to establish a link between Maximo and the district's PeopleSoft financial system so inventory and budgeting data is handled automatically on a daily basis, rather than having to be manually entered into the financial system.

WORDS OF WISDOM: Wood says installing the asset management system was easy for the users — primarily office staffers who enter attendance and other data over the school network. But it was a bit harder for some of the maintenance staffers who were less computer-literate. "These are people who are dedicated to serving the customer, not the paperwork, and the customers appreciate them," says Wood. "Because they are valuable workers, they deserve to have a better tool, and that is what Maximo is for us."

5. BUSINESS PROCESS MANAGEMENT

For the **Oklahoma Employment Security Commission** (OESC), implementing business process management software began with changing from a paper-based to an electronic workflow process. The OESC has 37 offices statewide that collect taxes and process unemployment insurance claims. Files were continually being sent by messenger between the main office in Oklahoma City and the office in Tulsa where most of the actual file work was done. When someone called in with a question, the paper record had to be tracked down in order to get an answer.

"We had tons and tons of paper files for every unemployment claim in Oklahoma," says Jerry Pectol, division director at the OESC. "It was a mess. I felt we needed to find a way to have electronic files with access from anywhere."

Two years ago, Pectol started moving to a paperless office. The OESC already had DocuShare Enterprise Content Management software from Xerox Corp., but it wasn't being used. Pectol retained a local firm, WaterWare Internet Services Inc., to customize a technology that incorporated DocuShare. The system went live in July 2005, with the electronic files in DocuShare serving as the official records of the claims. The repository contains more than 2 million searchable files on more than 280,000 claimants, with another 15,000 documents being added daily. "It doesn't matter whether it comes in through the fax server, mail, the Internet or the mainframe — it goes into DocuShare," says Pectol.

Having a document management system in place resulted in about a 30% efficiency boost and opened the door for further improvements by automating processes. "The biggest thing we are hoping to do in 2007 is automate a lot of our workflows so I don't have employees wasting time having to manually send e-mail or call someone when a document comes in or some action is taken," Pectol says.

In 2007, the focus will be on realignment of business process rules. "Right now, staff has to pull up their mainframe screen, pull up the Internet screens and pull up DocuShare. We want to be able to do everything from a single screen," says Pectol. "But there is no reason to start talking about architecture and technology until we have the processes and business rules in place."

WORDS OF WISDOM: Fix the processes before automating them. "You have to understand the business and the process before trying to implement a big technological change," says Pectol. "It does no good to try to automate stupid processes." ▸

Robb is a Computerworld *contributing writer.*

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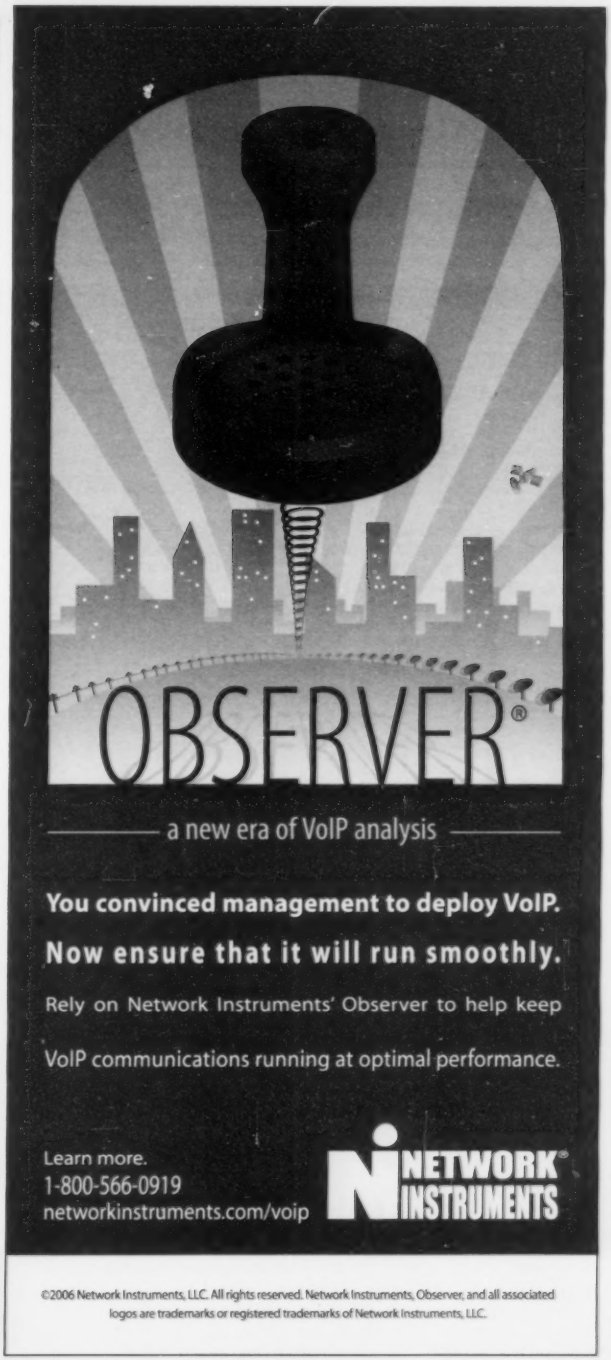
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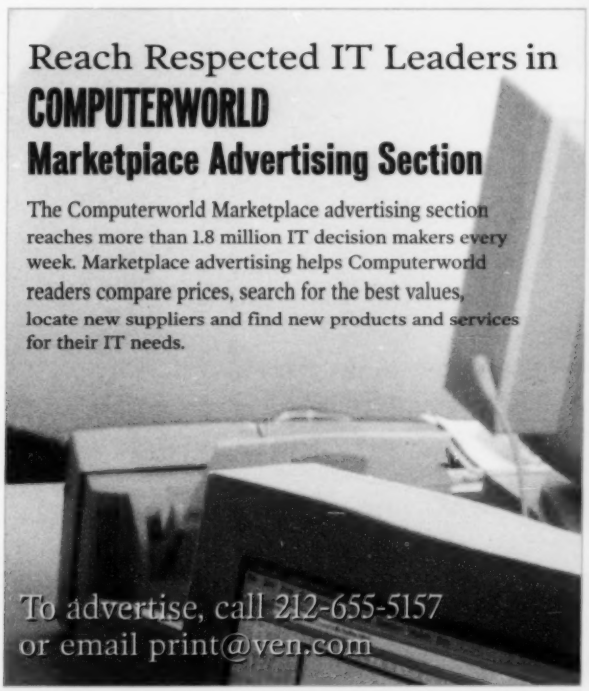
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FRANK HAYES ■ FRANKLY SPEAKING

Hope & Headaches

READY FOR 2007? The new year will have you running in all directions: gazing at some new Windows, playing a familiar numbers game and giving users the business, as usual. Just stay focused on the hot-button issues you'll have to meet head-on — or sidestep. Here are a few to watch for in the year to come:

■ **Vista arrives – at home.** It may be a year or more before corporate IT delivers Microsoft's new baby to users inside the firewall. But users themselves won't wait, and the PCs they use at home to connect with your internal systems and external Web sites will increasingly use Vista. Don't just test Vista for user desktops; make sure early on that your Web sites work properly with it, and get your help desk up to speed on Vista's (and Office 2007's) strange new user interfaces.

■ **Microsoft goes after Linux.** Microsoft CEO Steve Ballmer claimed in November that Linux infringes on Microsoft's intellectual property and that "we believe every Linux customer basically has an undisclosed balance-sheet liability." If that sounds like a line aimed at your CEO and CFO, it is. Expect a big Linux vendor (think Red Hat or IBM) to file a lawsuit of its own, in order to force Microsoft to spell out its claims in detail. Meanwhile, as The SCO Group's lawsuits against IBM, Novell and Red Hat spiral into oblivion, Microsoft will continue to look for some way to stave off the Linux threat.

■ **Sarb-Ox gets some clarity.** Everyone agrees that Sarbanes-Oxley's Section 404 is full of miserable reporting requirements. Or maybe not — the law itself isn't clear on practical application, so consultants have been extremely conservative in what they allow, and working within those constraints has been like swimming in a straitjacket. The new Congress is likely to give Section 404 a makeover to give the law some transparency — which is what Sarb-Ox was intended to provide for corporate information.

■ **Internal security gets hot.** Unauthorized employee blogs and Web sites. Applications that hand unneeded or unauthorized data to users. Networks wide open to any threat that gets past the firewall. This year, it's clear that perimeter security isn't enough. Get ahead of this one before it gets ugly in your shop.

■ **Will the Mac invade corporate IT? Nope.** Apple makes big bucks in entertainment these days; commodity PCs just aren't attractive. But keep an eye on how easy Apple makes it to bounce between Windows and OS X applications. Once that's seamless, the Mac becomes a corporate platform with real potential, not just a toy for power users.

■ **Start-ups are interesting again.** Actually, new IT ideas have been bubbling up for the past few years, and venture capitalists have recently started coughing up cash. It's time to start paying attention to the little guys with big ideas again.

■ **Flu pandemic: New Y2k or same old snake oil?** It's snake oil, folks. Gartner has been saying a pandemic is "highly likely." Actually, medical experts put the chance in the next three years at no higher than 10%. Being prepared is always nice, but if there's a better chance that some other problem needs the money, you know where to spend your disaster recovery budget.

■ **Offshoring gets smarter – on both ends.** CIOs have figured out it's not a panacea. Offshore outsourcers are starting to address security, communication and quality problems. And 2007 is the year to start rethinking how to wring more savings and business advantage out of offshoring.

■ **Business, as usual.** IT is still about understanding business, and especially the business you work for, from the CIO's office to the help desk trenches. You can't help the business users if you don't understand what's going on. And you can't build credibility for IT or identify the best technology to use. That's nothing new for 2007 — just the one thing that matters most.

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at **frank_hayes@computerworld.com**.

When Is a Monday . . . Not?

Support pilot fish at a bank gets to work on the morning after a long weekend to find one very unhappy user. "She said her program, which ran from the mainframe, put the wrong date on her transactions," says fish. "Customers were going to be upset that their money was in their accounts a day late. I asked her what the date was on the transactions and assured her that the date was right. She argued with me and was *very* upset that I was not going to change the date and finally blurted out that the date should be Monday. When I told her that today was Tuesday – Monday was a holiday and we were closed – she apologized and hung up. Guess she got really confused over the weekend."

Unclear on The Concept

SHARK TANK

Netadmin pilot fish gets a call from a teller at a bank branch: There's a beeping noise coming from the closet where the UPS lives, and it's been beeping for at least two hours. Why didn't you call two hours ago? fish asks. Teller: "It usually stops by now, but today it hasn't." Fish asks to talk to the branch manager. How long has the beeping been going on? he asks. Branch manager: "As long as I've been here – that's two months." Why didn't you call two months ago? asks baffled fish. Branch manager: "It usually stops by now, but today, it's constant beeping."

That Darn SQL!

Developer pilot fish is sent to troubleshoot this client/server application, which has lousy performance at branch offices. And he's surprised when every user says the same thing: "I hate SQL!" How do these people even know the application uses a relational database and SQL? fish wonders. "Turns out whenever the application performs a long database query, the cursor icon changes to an hourglass – superimposed with the letters 'SQL.' " sighs fish. "The users hate waiting and blame it on SQL."

That Explains It

Call comes to netadmin pilot fish that a user can't access his spreadsheet files. "I checked that the user's account was not disabled, that the user still had rights to the appropriate user and group data directories, and that the user had rights to use the software off the network," reports fish. "Everything checked out, so I telephoned the user. He promptly told me that someone from support had taken his PC two days ago to fix it, and that he needed it back now so that he could get into his spreadsheet files."

GET INTO THE TANK. Send your true tale of IT life to me at **sharky@computerworld.com**, and I'll send you a snazzy Shark shirt if I use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky**.

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